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PALESTINE.

DEPARTMENT OF HEALTH

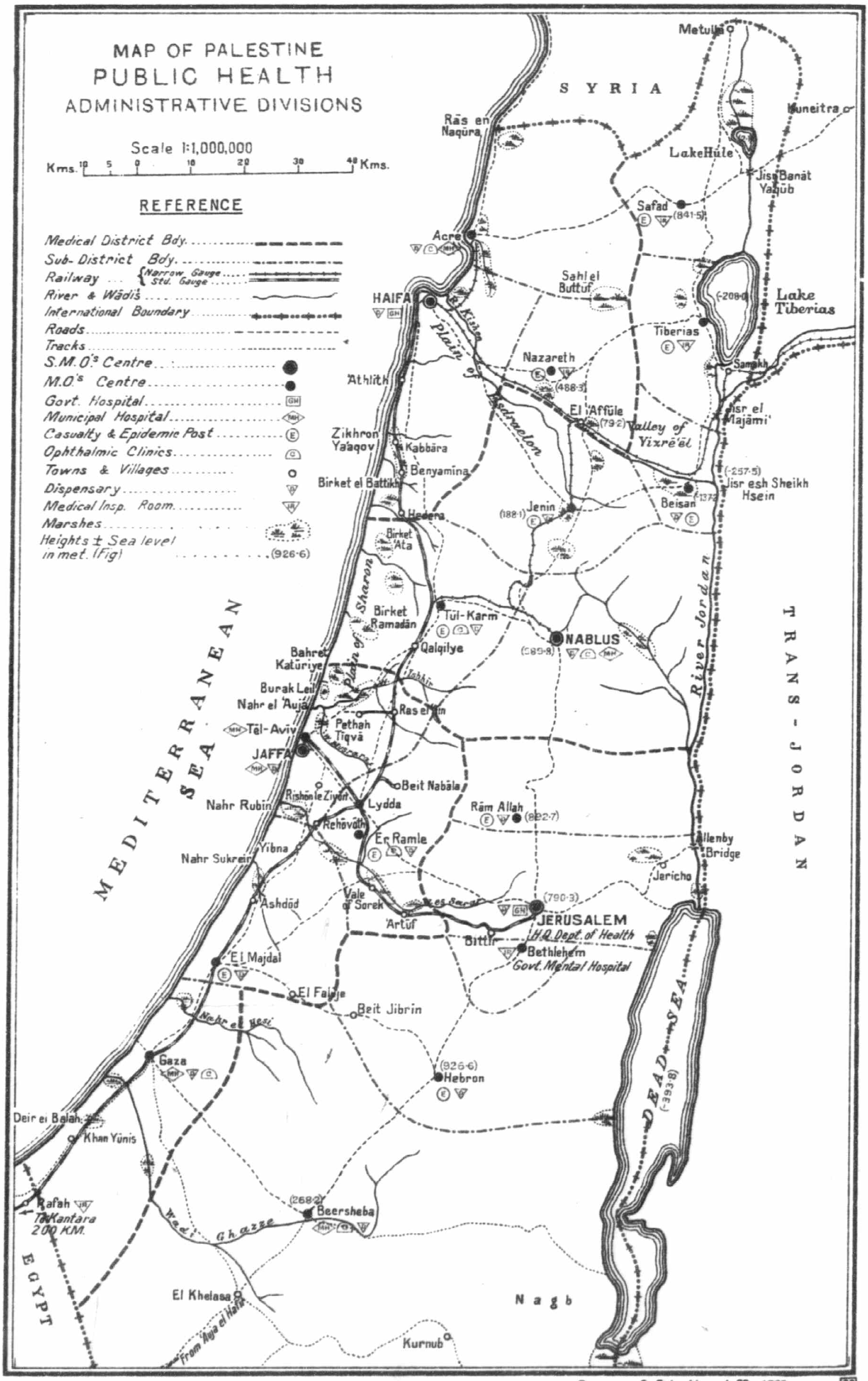
ANNUAL REPORT

FOR THE YEAR

1930.

To be purchased directly from the
PRINTING & STATIONERY OFFICE, RUSSIAN BUILDINGS, JERUSALEM.

PRICE: 100 MILS.



MAP OF PALESTINE
PUBLIC HEALTH
ADMINISTRATIVE DIVISIONS

Survey of Palestine Jaffa, 1931

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ANNUAL REPORT — 1930

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GOVERNMENT OF PALESTINE.

ANNUAL REPORT

of the

DEPARTMENT OF HEALTH

FOR THE YEAR

1930.

I. GENERAL CONSIDERATIONS.

A. ADMINISTRATION.

1. Personnel.

Dr. J.W.P. Harkness, Senior Medical Officer Class I, replaced, as Deputy Director, Dr. R. Briercliffe, O B.E., transferred to Ceylon as Director of Medical and Sanitary Services.

Dr. N.M. Maclennan replaced, as Senior Medical Officer, Dr. J.A. Henderson, transferred to Jamaica as Deputy Director of Health Services, and was posted as S.M.O. Jaffa District.

Dr. J.H. Thompson was appointed Senior Medical Officer (Railways) to fill the vacancy on the establishment, and was posted to Haifa.

Dr. J. Macqueen was transferred from the post of S.M.O. Jerusalem District to the post of S.M.O. Haifa District, vice Dr. J.A. Henderson transferred to Jamaica.

Study leave was granted to Dr. J. Macqueen to allow him to take the first part for the Diploma of Public Health, and also the Clinical Examination for the degree of M.D.

Dr. A. Rankine, M.C., on return from study leave was transferred to the post of S.M.O. Jerusalem District vice Dr J. Macqueen transferred to Haifa.

Dr. A. Rankine, M.C., completed the course and obtained the Diploma of Public Health (Glasgow University).

Dr. K.S. Krikorian was granted 3 months' leave during which period he attended the more important vaccine and pathological institutes in London and Paris.

On the occasion of His Majesty's Birthday, honours were awarded to the following Medical Officers of the Department: —

Dr. A. Abdel Al and Dr. S. Saleem

to be Honorary Officers of the Most Excellent Order of the British Empire.

Miss I. Freeth replaced Miss E. Redmile resigned.

Miss M.E. Lloyd was appointed to fill a new post of British Nursing Sister.

Miss E.N. Bruce was appointed to fill a new post of British Nursing Sister.

Four additional posts for District Nurses were approved in the 1930 Departmental Estimates.

The following was the distribution of staff at the end of the year~~s~~:—

Appointment	Class.	Name.	Station.
Headquarters and District Administration.			
Director.	"C"	Colonel G.W. Heron. C.B.E., D.S.O.	Jerusalem.
Deputy Director, (Hospital & Medical Section).	"E"	J.W.P. Harkness.	Jerusalem.
Senior Medical Officer, (Haifa District).	1	J. Macqueen.	Haifa.
Senior Medical Officer at H. Qrs. in charge of Sanitary & Epidemic Section.	1	W.P.H. Lightbody.	Jerusalem.
Senior Medical Officer, (Jaffa & Gaza Districts).	1	N.M. Maclennan.	Jaffa.
Senior Medical Officer. (Samaria & Galilee).	1	W.K. Bigger, M.C.	Nablus.
Senior Medical Officer, (Jerusalem District).	1	A. Rankine, M.C.	Jerusalem.
Senior Medical Officer,	1	Endemic Diseases.	Vacant.
Senior Medical Officer, (Railways).	1	J.H. Thompson.	Haifa.
Surgeon Specialist.	1	W.E. Thompson.	Jerusalem.
Chief Clerk.	3	C. Morrall.	Jerusalem.
Hospital and Medical Service.			
Asst. Senior Medical Officer, (Hospital and Schools).	3	D. Bulos, M.B.E.	Haifa.
Asst. Senior Medical Officer, (Training School).	3	H.F. Khalidi.	Jerusalem.
Medical Officer, (Hospital).	3	Y. Hajjar.	Jerusalem.
Medical Officer, (Mental Hospital and District).	3	M.S. Maloof.	Bethlehem.
Medical Officer (Hospital).	3	R. Reitler.	Haifa.
Medical Officer (Hospital & Schools).	3	S. Bodossian.	Ramleh.
Medical Officer (Hospital & Schools).	3	F.I. Haddad.	Acre.
Medical Officer (Hospital & Schools).	3	H.S. Khalidi.	Nablus.
Medical Officer (Schools).	3	K. Keshishian.	Jerusalem.
Medical Officer (Hospital & Schools).	3	F. Dejani.	Jaffa.
Medical Officer (Hospital & Schools).	3	N. Hamzeh.	Gaza.
Medical Officer (Hospital & Special Clinic).	3	A.T. Sternberg.	Jerusalem.
Medical Officer (Hospital & District).	3	I. Itayim.	Tulkarem.
Medical Officer (Hospital & District).	3	S. Shihab.	Beersheba.
Inspector of Pharmacies.	3	Farid Haddad.	Jerusalem.
Medical Officer (Special Clinic).	3	M.A. Shukair.	Hebron.
Medical Officer (Tuberculosis Survey).	3	Vacant.	—
Matron.	Special.	Miss E. Dickin.	Jerusalem.
Matron.	Special.	Miss E. Davies.	Haifa.
Matron.	Special.	Miss L.J. Hanson.	Nablus.
Matron.	Special.	Miss I.G. Cooper.	Jaffa.
Matron.	Special.	Miss F.I. Channel.	Bethlehem.
British Nursing Sister.	Special.	Miss M. McLagan.	Jerusalem.
British Nursing Sister.	Special.	Miss I.E. Cowan.	Jerusalem.

Appointment.	Class.	Name.	Station.
British Nursing Sister.	Special.	Vacant.	
British Nursing Sister.	Special.	Miss I. Freeth.	Jerusalem.
British Nursing Sister.	Special.	Miss M.E. Lloyd.	Jerusalem.
British Nursing Sister.	Special.	Miss E.N. Bruce.	Jerusalem.
Superintendent of Midwifery.	Special.	Miss V.W.E. Rogers.	Jerusalem.
Superintendent of Midwifery.	Special.	Miss C.M. Beville.	Nablus.
Sanitary and Epidemic Section.			
Sanitary Engineer.	2	L. Cantor.	Jerusalem.
Asst. Sanitary Engineer.	3	M.Y. Samaha.	Jerusalem.
Asst. Senior Medical Officer.	3	R. Oplatka, M.B.E.	Tel-Aviv.
Asst. Senior Medical Officer.	3	H. Abu Rahmeh, M.BE.	Seconded as Director of Public Health, Trans-Jordan.
Asst. Senior Medical Officer.	3	M. Shishmanoglou.	Jaffa.
Asst. Senior Medical Officer.	3	J. Tucktuck.	Nablus.
Asst. Senior Medical Officer.	3	Z. Haddad.	Haifa.
Medical Officer.	3	F.K. Abla.	Majdal.
Medical Officer.	3	A. Abdel Al, O.B.E.	Hebron.
Medical Officer.	3	K. Abu Ghazaleh.	Hebron.
Medical Officer.	3	G.E. Ayoub.	Jaffa.
Medical Officer.	3	M.B. Erdikian.	Acre.
Medical Officer.	3	I. Haurani.	Gaza.
Medical Officer.	3	K. Eid.	Ramallah.
Medical Officer.	3	Taher El Khatib.	Safad.
Medical Officer.	3	M.K. Mishalany.	Nazareth.
Medical Officer.	3	A.A. Shehadeh.	Haifa.
Medical Officer.	3	F. Shubeita.	Jaffa.
Medical Officer.	3	E. Sukkarieh.	Nablus.
Medical Officer.	3	A. Haddad.	Ramleh.
Medical Officer.	3	J. Hassoun.	Haifa.
Medical Officer.	3	A.M. Shehadeh.	Jerusalem.
Medical Officer.	3	A. Malchi.	Tiberias.
Medical Officer.	3	S. Saleem, O.B.E.	Jerusalem.
Medical Officer.	3	S. Yassin.	Nablus.
Medical Officer.	3	H.M. Torian.	Beisan.
Inspector of Trades & Industries.	3	G.R.P. Witts.	Jerusalem.
Quararantine Section.			
Asst. Senior Medical Officer.	3	Y. Chami. M.B.E.	Jaffa.
Medical Officer.	3	B. Franco.	Haifa.
Laboratory Section.			
Asst. Director, (Laboratory Section).	1	G. Stuart, O.B.E.	Jerusalem.
Government Analyst.	2	G.W. Baker.	Jerusalem.
Bacteriologist.	3	K.S. Krikorian.	Jerusalem.
Asst. Bacteriologist.	3	M.S. Dabbagh.	Jerusalem.
Asst. Analyst.	3	W.J. Itayim.	Jerusalem.

2. Ordinances, Regulations, etc.

The following Laws and Requlations affecting the Department have been enacted during the year: —

Subject.	Official Gazette No.	Date
Pharmacy (Amendment) Ordinanee, 1921-1928. Power to make regulations for the licensing of Pharmacists.	259	16.5.30
Drainage Ordinance, 1930.	264	1.8.30
Regulations under Quarantine Ordinance, 1922. Tourists arriving by sea as members of specially conducted parties.	250	1.1.30
Regulations regarding the disembarkation of Pilgrims, Travellers etc. at Ports of Jaffa and Haifa.	251	16.1.30
Regulations. — Detention of Prisoners in Criminal Lunatic Section.	256	1.4.30
Regulations. — Pharmacy Ordinance, 1928. Examination of Assistant Pharmacists.	258	1.5.30
Petroleum Regulations. Trades and Industries Ordinance, 1927.	259	16.5.30
Model Bye-Laws (including sanitation) for Theatres, Cinemas, etc.	261	16.6.30
Regulations made under Midwives Ordinance, 1929. Licensing and recognition of Diplomas of Midwives.	263	16.7.30
Amendments to Rabies Rules 1928-30. Detention of Stray Animals in Municipal Kennels.	255 265	16·3.30 16.8.30
Amended Regulations.—Medical treatment of Government Officers.	273	16.12.30

3. Revenue and Expenditure.

The following is a summary of the Estimates of Revenue and Expenditure for the financial year 1930. The comparative total figures of estimates of expenditure for previous years are given below :—

Revenue.		Expenditure.	
1.1.30 to	A. Personal Emoluments	£P. 76,143	
31.12.30 £P. 9,860	B. Other Charges.	£P. 32,408	£P. 108,551

Detail of Other Charges.

Transport & Travelling	£P. 5,615
Railway Fares & Freight	2,000
Lighting, Heating & Electrical Supply	1,600
Drugs, Dressings & Instruments	5,100
Vaccine & Sera	650
Equipment & Stores	2,000
Disinfectants & Maintenance of Disinfecting Machines.	1,200
Hospital Diets	7,250
Clothing	1,300
Epidemic Outbreaks	400
Medical Attendance in Private Hospitals.	550
Relief.	70
Contribution to Tropical Diseases Bureau.	60
Contribution to Seamen's Hospital	11
Contribution to Colonial Advisory Medical Committee.	27
Contribution to Permanent Commission of the Office International d'Hygiene Publique.	30

Fees for Notification of Births & Deaths in villages.	£P. 500
Medical Library.	80
Allowances to Officers attending Courses of Instruction.	300
Services rendered by the Quarantine Board of Egypt.	100
Telegrams, Telephones and Postage	1,200
Contingencies.	100

Special Expenditure.

Steam Disinfecting Machine.	700
Typewriters.	120
Electrical Laboratory Equipment.	650
Motor Disinfecting Lorry.	275
Clothing.	520
	£P. 32,408

	Revenue.		Expenditure.		
1929	£P. 10,350	A. Personal Emoluments.	£P. 73,694		
		B. Other Charges.	£P. 29,885	£P.	103,579
1928	10,480	A. Personal Emoluments.	£P. 74,080		
		B. Other Charges.	£P. 31,380	£P.	105,460
1927 (9mths)	£E. 7,320	A. Personal Emoluments.	£E. 52,948		
		B. Other Charges.	£E. 24,955	£E.	77,903
1926-27	13,830	A. Personal Emoluments.	£E. 68,987		
		B. Other Charges.	£E. 28,692	£E.	97,679
1925-26	9,050	A. Personal Emoluments.	£E. 63,140		
		B. Other Charges.	£E. 21,341	£E.	84,481
1924-25	9,570	A. Personal Emoluments.	£E. 61,791		
		B. Other Charges.	£E. 20,632	£E.	82,423
1923-24	11,590	A. Personal Emoluments.	£E. 64,226		
		B. Other Charges.	£E. 29,032	£E.	93,258
1922-23	8,720	A. Personal Emoluments.	£E. 72,508		
		B. Other Charges.	£E. 32,860	£E.	105,368
1921-22	8,158	A. Personal Emoluments.	£E. 70,914		
		B. Other Charges.	£E. 82,795		
			£E. 153,709		
		Less estimated cost of Railway Medical Service.	£E. 10,824	£E.	142,885

The Palestine Government Estimates of Revenue and Expenditure for the financial year under review were as follows:—

Revenue £P. 2,298,685. Expenditure £P. 2,297,337.

B. FINANCE:

There was a small increase in the estimated expenditure for 1930. Such increase was accounted for by normal increments of salaries, a Senior Medical Officer for the Railways, increase in the number of British Nursing Sisters, of District Nurses and Probationers, and subordinate hospital personnel.

The duties of the S. M. O. Railways include medical attendance on British Government Officers and their families in view of the closure of the St. Luke's Mission Hospital, Haifa, which previously provided amenities for this class. The increases in hospital staff were designed to meet the expansion of the bedstrength of certain hospitals, to provide for infectious cases, and in two instances for 1st Class and European patients.

The remaining increases were on account of special expenditure devoted to the provision of laboratory electrical equipment in replacement of the forms of mechanical apparatus previously in use; to replacement of mule-drawn Disinfecting Carts by a motor lorry in Jerusalem; and to the provision of great-coats for winter use by outdoor staff. The gradual replacement of unserviceable disinfecting plant continued.

Certain minor developments within the Department of Health, envisaged in the estimates for 1930, did not materialize, in view of the fact that the Government Estimates were not approved until the end of the year. For the same reason credits included in the Public Works Estimates for various improvements to Hospitals and Lazarettes could not be utilized, and there was very little done beyond maintenance.

The purchase of the site for the projected new Mental Hospital was concluded and the plans were advanced, but the construction was again postponed.

The postponement of the temporary and small extension of the existing mental hospital was a matter of very considerable embarrassment to the Department, while the delay in the larger building programme leaves the matter of the accommodation of the insane in a very unsatisfactory situation.

The alterations and special repairs to the voluntarily supported Ezrath Nashim Asylum, at a cost of £P. 2507, were commenced by the Government during the year, and equipment provided.

A sum of £P. 900 was provided for the completion of the Kishon Antimalarial Drainage Scheme.

Municipal enterprise was limited for want of credits, so that there was no notable improvement in the Water Supply and Main Drainage situation. A loan of £P. 40,000 to the Municipality of Jerusalem was approved for the first and most urgent part of the Main Drainage. This sum will provide for sewerage, without lateral drains, of the Jaffa Road-Mamilla Section of the city and relieve the very serious conditions that apply in this rapidly developing area, in which cesspits and percolating pits are unable to deal with the sewage and are a constant source of nuisance.

There were no loans granted to Palestine from the Colonial Development Fund.

Minor expenditure was incurred by both Jaffa and Haifa Municipalities on improvements of drainage connections, but in general, recovery was made from the owners of the property benefited.

Considerable enterprise was shown on the part of the villagers and colonists as regards the development and improvement of local water supplies. No less than 26 villages and colonies have carried out such improvements on the advice of the Department at an approximate cost of £P. 8,500.

Local Councils, the revenues of which are, as a rule, very limited, continued to expend small sums on scavenging. In a certain number of Jewish Colonies, where local committees exist, irregular scavenging was carried out.

In spite of the general financial depression, it was notable that building in town areas continued to advance, and the increase in the number of shops was out of all proportion to the requirements of the towns.

Although the compensation from the Earthquake Fund to individuals was small, the construction of masonry houses on approved lines and outside the old towns, to replace temporary wooden houses erected after the earthquake, advanced apace in Nablus, Ramleh and Lydda. The opportunity was taken to open up these old towns by new or wider streets in the ruined areas, and the village of Raineh has now been reconstructed on a neighbouring site. The results have been most salutary.

The village Arab, on account of the very rapid increase of population and of the depressed agricultural situation, had little money to spend, beyond that required for bare existence. He is accustomed, however, to exist on what his land and his animals produce, and therefore does not starve.

Owing to world-wide financial depression, the funds available for the maintenance of voluntary hospitalsand laboratories in Palestine as a whole, appear to have declined. This is particularly evident in the case of the Jewish Voluntary Hospitals and Laboratories, including the Hadassah Medical Organization. This decline in funds has already had the effect of throwing greater responsibilities on the Government and Municipal Hospitals and Laboratories, and undoubtedly, in the near future, expansion in bedstrength and laboratory facilities will have to be undertaken to meet the reduced activities of voluntary institutions.

The principle has been agreed upon by Government that expansion of the existing Government Hospitals, to meet the requirements of all communities, is both preferable and more economical than providing grants for maintenance to voluntary hospitals, whose expenditure may be on a more lavish scale then that practised by the Department of Health, and is not under the direct control of the Government. Proposals, on this basis, were put forward to expand, on the most economical lines, the hospital provision in the Northern District where there is now a definite shortage of beds for medical and surgical cases, as well as for infectious disease, and where there is likely to be a more critical shortage in the near future owing to the closure of certain voluntary institutions, and owing to a considerable natural increase in the population.

The falling off in subscribed funds occurs at a time when the Government is least able to incur additional expenditure in the expansion of its hospital and laboratory provision, and the immediate outlook, therefore, for medical services in Palestine is discouraging unless additional credits are forthcoming.

The Department of Health's Estimates of Expenditure formed 4.7 of the total Government Expenditure for 1930.

C. PUBLIC HEALTH.

1. General Considerations.

The death rate fell from 26.50 per 1000 to 23.14. The fall was, in general, due to the decrease in the epidemic diseases, more especially measles. The deaths from lobar and broncho-pneumonia, associated frequently with measles or influenza, showed a considerable increase in towns.

The death rate amongst the Jewish population fell from 11.79 to 9.60. This strikingly low rate is due to the absence of serious epidemic disease, to the very complete, if expensive, medical provision provided for Jews from subscribed funds, and to the fact that the immigrant population is almost entirely of young adult age.

The Infant Mortality rate under one year fell from 186.47 per 1000 births to 154.28, which is the lowest figure yet recorded. A general fall of this nature cannot, however, be ascribed to the effect of 17 Infant Welfare Centres for an Arab population of 680,665, but the fall was in most cases greater in towns where centres existed. On the other hand, the fall from 89.78 to 69.00 in the case of the Jews is clearly due to the almost complete chain of centres numbering 24, established by the Hadassah Medical Organization and with other subscribed funds, to deal with the babies of a population of 162,000.

A contributory factor of importance is that the majority of Jewish confinements take place in hospital.

The birth rate of 52.88 per 1000 compared with 51.15 in 1929 remained at approximately the same level as in the past 5 years. The Moslem figure actually rose to 60.31 per 1000, while the Jewish figure remained almost the same as in 1929, namely at 33.4.

The natural increase of population rose, therefore, to 29.7 per 1000 of population, Moslems 32.4 and Jews 23.8, which are remarkable figures when compared with a natural increase of population in England in 1929 of 2.9 per 1000, and in 1930 of an actual decrease.

The ignorance of Arab mothers of the first principles of rearing healthy children is remarkable in a people who are on the whole clean living and whose houses, at any rate in Judaea and Northern Palestine, are remarkably clean internally though frequently primitive in structure .The satisfactory reaction of the poorer class Arab in other respects to health matters, such as to antimalaria measures, to protection of water supplies and to medical advice generally, leads one to think that, given organized instruction in Infant and Child Welfare on a larger scale than is possible at present, the ignorance now displayed would very soon be overcome.

It is to the schools that we must look for the training of the future generation of parents, and in this connection, a Senior Medical Officer remarks that "The foundation of all public health activities should be laid in the schools which are the most suitable nuclei for disseminating modern ideas of sanitation. Any hygienic reform or innovation, can be obtained only by educating the people to the value of it, and it is obvious that hygienic education should comence in early life.... The school itself and its surroundings should serve to the children as a model of what is considered perfection. In most of the Government schools these generalities have been applied and an efficient medical service is at work. The condition of many of the private schools is appalling. Frequently, no sanitary conveniences exist, lighting and ventilation are deficient and gross overcrowding occurs".

If schools are recommended for closure, difficulties arise on account of the lease and on the matter of finding other suitable premises, so that in many instances, education is allowed to proceed at the expense of sanitation.

The duties of Medical Officers of subdistricts continued to expand. The loss of time experienced in medico-legal cases and in the subsequent attendances in court was again an important factor. The frequent calls made by the Police for the Medical Officer to proceed to distant villages on the rumour of severe wounding resulted in many useless journeys to attend to trivial injuries.

Calls to attend courts at distant points frequently resulted in the absence of the Medical Officer from his sub-district or from his hospital for the whole day or longer.

The hospital accommodation for the sick was adequate in the larger centres but on account of the closure of the new Schweitzer Hospital at Tiberias and of the use of all, except 11 beds, for tuberculosis cases at the Hadassah Hospital at Safad, the provision for the Northern and Eastern Galilee proved insufficient.

The increase of the British section of the police and their wide distribution, made necessary special medical arrangements which worked satisfactorily on the whole. Consideration was given to the improvement of their barracks in several instances.

It was necessary for the Department to cooperate in the provision of medical aid to the companies of the Trans-Jordan Frontier Force now established in Palestine.

The technical services of the Municipal Hospitals in 5 towns continued to be controlled by the Department, while the non-technical services remained under the local Hospital Committee on which the Department and the Municipality were represented. The system of divided control has shown signs of breaking down in certain cases, owing to the demands of the municipalities in respect of the technical Government staff, together with an unwillingness or inability to shoulder their proportion of the expenditure. It is a matter for consideration as to whether or not the system should be continued.

The Ophthalmic Hospital of the Order of St. John continued its association with the Department's district clinics, and dealt with the bulk of the ophthalmic disease. The principle of entirely free treatment maintained by the Order and by the Department's subsidiary ophthalmic clinics, gives this service an added value, in that it is available for the poorest amongst whom trachoma and acute conjunctivitis are especially prevalent. One Medical Officer of the Department and five nurses did courses of training in ophthalmic practice at the hospital during the year.

The Edinburgh Mission Hospital at Nazareth, the Scottish Mission Hospital at Tiberias and the C.M.S. Hospitals at Jaffa, Nablus and Gaza, and the English Hospital of the London Jews Society at Jerusalem continued their valuable services to the people and the St. Luke's Hospital, supported by Jerusalem and the East Mission, was firmly established at Hebron. The Government had the privilege of subscribing a capital sum towards the completion of a section of this latter hospital.

We have again to record the valuable and ready assistance given to the Government by Dr. Orr-Ewing, Honorary Medical Consultant, in several difficult cases.

The Hadassah Medical Organization financed by the Women's Zionist Organization of America, maintained the Rothschild Hospital in Jerusalem, the Hadassah Hospitals at Safad. and Haifa and subscribed the larger share of the funds of the Hadassah Hospital at Tel-Aviv.

The Kupat Cholim Hospital, newly transferred to its new buildings at 'Affula did valuable work for the Jews of the Emek.

The Shaare Zedek and Bicur Cholim assisted in providing for the Jewish Community of Jerusalem, the former again accommodating a considerable number of infectious cases for which there is such limited accommodation elsewhere.

The Jewish Community ~~are~~ is very well provided with medical aid. The Community consists of 162,000 for whom there are hospital beds to the number of 642 apart from private hospitals and Convalescent Homes, while it has medical provision made by the Hadassah and Kupat Colim in the form of 58 doctors and 31 nurses in 85 Jewish colonies, and nurses in 24 Infant Welfare Centres. The result is reflected in the low death rate and infant mortality.

2. Communicable Disease

The policy, which has been adopted since the organization of a Health Service in Palestine, of concentration in prevention of communicable disease was continued, and the results appeared again to justify that policy in the case of the diseases which are generally regarded to be endemic in the Middle East. Epidemic, endemic and infectious disease accounted for 8.78 % of the total deaths, compared to 6.4% in 1929.

Antityphoid inoculation was continued regularly in the Jewish Colonies in the Emek, where the protection conferred in past years has resulted in popularizing this prophylactic measure. The general sanitation of colonies and villages cannot be said to have improved materially, but in the former, water supplies have been in most cases developed, while in the latter, protected supplies are on the increase. 26 villages, during the year, protected and improved their supplies at the Medical Officer's instigation, and themselves subscribed the necessary funds; such protection was in the poorer villages limited to masonry protection of the well and its surroundings, and provision of animal troughs, or to protection of the spring and to conveyance by pipes to a small reservoir provided with taps. The results in quantity and quality fully justified the expenditure.

Dysentery so long prevalent in Tiberias almost entirely disappeared in 1930 following the establishment of the main water supply and its automatic chlorination by a Paterson Chloronome. Similar results will undoubtedly be achieved as regards enteric and dysentery in Haifa, Jerusalem, Jaffa and Nablus, when main water supplies in these towns are established on correct lines.

Amongst endemic diseases, we have, in recent years, reduced malaria incidence and mortality in towns to a negligible figure, while in the rural districts the incidence has been brought down to manageable proportions, and the mortality has been insignificant. Such conditions, however, are only maintained by constant work on the part of urban and district medical staff, and any relaxation is at once advertized by local epidemic conditions. In urban areas the routine of inspection, closure, oiling etc. requires careful supervision, more especially in view of the general absence of adequate main water supplies and the resulting necessity to store water in cisterns or to develop household wells.

The rural work requires even more careful supervision in view of the changing situation annually, and of the necessity of obtaining the active assistance of a somewhat lethargic population to carry out clearance of water courses or new drainage work.

It is of interest to record, as an indication of the extent of the urban work, that 2,012,162 water collections were inspected and 729,592 places oiled or otherwise rendered mosquito proof. In Jerusalem alone, there are no less than 7246 underground rain water cisterns, 16,132 cesspits, and 11,379 other water collections to be dealt with each fortnightly.

In the case of the rural work, 537,719 water collections were inspected, 261,189 places oiled or otherwise dealt with and water courses were cleared with 82,232 days of voluntary labour or of labour paid for voluntarily by the colonists. Each mountain village has its quota of rock cisterns, while the villages and colonies in the plains rely on springs, wells and water courses for their drinking and household supply.

The cost to the Government, including a grant of £P.1100 for special provision during the malaria season of foremen supervisors and for labour on Government-owned land or water courses was £P. 6678, exclusive of the time of the S.M.Os. and Medical Officers in the ordinary course of their duties. The cost to municipalities was £P. 3043.

The application of the terms of the Antimalaria Ordinance to enforce work in rural districts was seldom necessary. Labour was given readily and voluntarily. In towns and villages the application of the ordinance was more frequently required in connection with the provision of mosquito-proof covers to cisterns and wells.

We again had the advantage of an occasional visit of Mr. J.C. Carter, Malaria Engineer of the Rockefeller Foundation, now in Egypt, who advised us on certain aspects of the Kishon, Acre (Naamein River), and Nebi Rubin antimalaria schemes, and on the problems resulting from the damming of the Jordan and the formation of a reservoir on the Yarmuk River in connection with the Rutenberg Hydro-Electric Scheme.

The summer epidemics of acute conjunctivitis were not so general, but there was little abatement in the incidence of trachoma in spite of the activities of the Ophthalmic Hospital of the Order of St. John, and of the six Government clinics in the districts over which the Order maintains an inspectional supervision. As an indication of the prevalence of the disease, more especially in the Southern District, records showed that 99.2°/₀ of all boys in Ramleh schools had the disease, although the regular treatment of the school boys has converted most cases of the disease from the active 1st and 2nd stages to the quiescent or healing 3rd or 4th stages. In Gaza, similar conditions prevailed in spite of 124,728 attendances of village and town school children for treatment, and 59,612 attendances from the rest of the population for trachoma and other eye diseases.

In both these towns, the Department has ophthalmic clinics, but in Jaffa where there were 38,804 attendances for trachoma of town school children and 136,956 of village school children, we have not been able, for financial reasons, to establish an ophthalmic clinic.

We have again to record the invaluable assistance given by the Warden of the Ophthalmic Hospital of the Order of St. John, Dr. J. Strathearn, Hon. Consulting Ophthalmic Surgeon to the Government, in supervision of the clinics and in training of doctors and nurses.

Syphilis in Hebron District is a problem of some magnitude which we have not the means of tackling satisfactorily. The special clinic dealt with as many cases as it could, and the Medical Officer held subsidiary clinics in distant villages where as a rule there were more attendances than he could deal with. Spirocid treatment, after positive Wasserman test, is adopted in the villages, and, on account of the ease of administration of this drug by the mouth, continuous treatment can be more easily maintained. Its permanent efficacy remains to be proved, but it undoubtedly has the advantage of rapidly reducing the infective material in a village, where oral, rather than venereal infection, is the rule. The treatment of this disease, when means are available, requires development on a much larger scale and extension to other areas known to be highly infected.

It was again not possible, in the absence of credits, to commence a Tuberculosis Survey. It is becoming increasingly evident that tuberculosis is prevalent to a marked degree in certain villages, and that in view of its frequently chronic nature, very few cases are receiving effective, if any, treatment. The few cases that were unwillingly admitted to general hospitals were very far advanced and of a hopeless character.

The Hadassah Hospital at Safad retains 36 beds for Jewish cases, but there is not yet any serious attempt to segregate the different types or stages, to develop open air or sun treatment in early cases, but the adoption of the surgical measure of artificial pneumothorax has been commenced.

No case of small-pox occurred during the year. The rural population is adequately protected by vaccination, but complete protection in towns is difficult of attainment in spite of our legal powers of compulsion.

D. Industrial Conditions.

The results of the control of Trades and Industries were satisfactory, and again involved the Medical Officers and Inspectors of the Department in considerable work. The value of the work in improving the general health conditions in the country cannot be too strongly emphasized. The control of establishments dealing with foods and beverages has been the means of reducing the incidence of disease of the enteritic group to manageable proportions, and in effect permits the Department to economize in the provision of hospital beds for this class of case.

The control of drainage, ventilation, and sanitary conditions in hotels, restaurants, and cafes which in so many countries in the East are the source of disease, has reduced to a minimum the apprehensions of tourists and visitors who are so important a source of the revenues of the country, and has developed in the proprietors and their local clientele a sense of cleanliness and hygiene unknown a few years ago in Palestine.

The Department has little difficulty now in obtaining reasonable sanitation in old establishments, and a high standard in new. The people themselves are beginning to demand it.

In spite of the financial depression, large buildings continue to be constructed. The amount spent in the erection of public and private buildings in 1930, according to municipal records, was £P. 2,448,670 compared to £P. 1,741,687 in 1929. There was considerable building activity, also, in certain villages.

A first class hotel was completed in Jerusalem and its sanitation, ventilation and culinary arrangements are a model for other enterprises of this kind. Another hotel, on change of ownership, was completely remodelled on approved lines.

The construction of shops advanced to an amazing extent in all towns, quite out of proportion to requirements, but the standard of shop has considerably improved and evacuation of the old and unhealthy premises to new quarters is proceeding rapidly.

Construction of new places of public entertainment, more especially cinemas, and reconstruction of old, advanced considerably in the towns. The proprietors are making good profits in this class of establishment and have the necessary credits for improvement.

The fellaheen, as a result of poor prices for their crops and of the rapidly increasing population, are in some distress. Their standard of living is so poor, and their requirements are so small, that it is difficult to gauge the extent of that distress. There is certainly no evidence of it at present in the returns of disease.

The Jewish colonists appear well fed and live under reasonably comfortable conditions, and in spite of the large numbers recorded as attending out-patient clinics, or as admitted to hospital, the amount of serious disease amongst them is comparatively small.

E. MUNICIPAL SANITARY SERVICES.

The Municipal Services were, with a few exceptions, well maintained and the general cleanliness was on the whole satisfactory when one takes into consideration the habits of the lower class population. Promiscuous defaecation and urination in open spaces and in corners is the rule rather than the exception, and can only be stopped by police action and the more adequate provision of public latrines. A few latrines were established during the year in Jerusalem and elsewhere, but the provision is totally insufficient.

The standard of house drainage and sanitary installation advanced considerably under the prescriptions of the Building Permit Committees, and in old buildings there was considerable demand for modern sanitary installations.

House drainage was improved in the better class quarters in Haifa, Jaffa and Jerusalem, but the lack of main drainage was again acutely felt, more especially when the householder had to pay heavily for the periodical voiding of cesspits.

Valuable subsidiary drainage was effected in the 3 larger towns under the supervision of the Sanitary Surveyors, whose work in this and in household installations and in the general conduct of the sanitary services of the Municipalities cannot be too highly praised.

The plans for the new slaughter-house and refuse destructor at Jerusalem were completed and the site secured.

At Tel-Aviv, the new slaughter-house was completed on approved and satisfactory lines with special provision for the separation and disposal of blood as prescribed by the Department.

The principal municipal roads are now overlaid with tarmac, and, apart from the improvement in cleanliness that has resulted, the dust nuisance which was such an unpleasant and unhealthy feature of Palestine in the past, has been almost entirely overcome.

There is still a notable absence of public open spaces and gardens within municipal areas, and the planting of trees at the sides of roads, with a few conspicuous exceptions, is neglected.

F. TOWN PLANNING:

Under the terms of the Town Planning Ordinance, considerable progress was made. The Government were fortunate in being able to retain the valuable services of Mr. A. C. Holliday as Adviser.

Outline town plans have now been completed in the case of four of the larger towns and three others are in draft. The outline plans prescribe:—

(a) The alignment of roads and building lines.

(b) Drainage.

(c) Water Supply.

(d) The limitation of Zones for Trades and Industries and for residential and other purposes.

(e) Conditions and restrictions in regard to open space about buildings and the character of buildings in special areas.

A number of Town Planning and Parcellation Schemes within the outline plans were submitted during the year and approved after amendment.

The majority of the Local Commissions have now adopted, with minor amendments, and put into practice the model Bye-Laws made by the Central Commission.

The Department re-issued its plumbing regulations and again held examinations for registration of plumbers. 84 plumbers have now been examined and placed on the register.

The results of the control under the Outline and Parcellation schemes, the model Bye-Laws and plumbing regulations are proving most beneficial from the standpoint of public health and constitute an educational factor of considerable value to the more enlightened classes who are generally eager to adopt English standards of hygiene.

II. VITAL STATISTICS & EPIDEMIC DISEASE.

1. Vital Statistics.

(a) Population.

The estimation of the mid-year population has been based as in previous years on the census of 1922, with due regard to natural increase and to movements of population by immigration and emigration. The Department being responsible for the registration of births and deaths is in a position to provide the figures relating to natural increase whilst the data required in respect of immigration are provided by the Chief Immigration Officer.

The population of Palestine is in part settled and in part nomadic. Registration of births and deaths in the case of the former is compulsory by law and is reasonably accurate. Registration in the case of the latter is not attempted and the figures given below in respect of the nomadic population is that obtained in the census of 1922.

There is little doubt, however, that the figure given as the mid-year population is an under-estimate and due consideration must be given to this in considering the birth and death rates for the year.

At the 1st July, 1930, the population was estimated to be:

Settled population:	
Residents in towns and villages	843,132
Nomadic population:	
Bedu tribes (1922 Census)	103,331
	946,463

The classification by religions is as follows:—

Moslems, (including 1922 census figures for Bedu tribes).	Jews.	Christians.	Others.	Total.
692,180	162,467	82,590	9226	946,463

No adjustment has been made in these figures for unrecorded immigration.

Corresponding figures in the 1922 census are:-

Moslems (including Bedu tribes).	Jews.	Christians.	Others.	Total.
589,508	83,790	71,464	7617	752,379

(b) Births, Deaths and Infant Mortality During 1930.

The totals of births and deaths as shown below are calculated upon the settled population only.

Year.	Births.	Deaths.	Deaths under one year of age.
1926	40,741	18,620	6,642
1927	39,193	21,806	7,857
1928	42,895	23,054	7,983
1929	41,742	21,632	7,784
1930	44,587	19,513	6,879

The ratio per thousand of the population for 5 years is as follows:—

Year.	Estimated mid-year population.	Death rates.	Birth rates.	Infant Mortality rates.
1926	761,896	24.43	53.47	163.00
1927	778,369	28.01	50.35	200.50
1928	794,516	29.01	53.98	186.34
1929	816,064	26.50	51.15	186.47
1930	843,132	23.14	52.88	154.28

Whilst the rates for 1930 compare favourably with those of the preceding years, the uncertainty as to the extent of the margin of error in the estimate of the midyear population renders any attempt to comment on the yearly variation ill-advised. The forthcoming census may serve to explain the apparently high rates.

The estimated increase of population during the past five years has been:-

Year.	Natural increase.	Rate per 1000 population.	Difference between immigration & emigration.	Increase or decrease per 1000 of population.	Total rate of increase per 1000 of population.
1926	22,121	29.0	+ 4481	+ 5.9	34.9
1927	17,387	22.3	— 3826	— 5.0	17.4
1928	19,841	24.9	— 0036	— 0.04	24.9
1929	20,110	24.6	+ 3731	+ 4.6	29.2
1930	25,074	29.7	+ 0326	+ 0.38	30.12

The natural increase of the religious divisions expressed as a ratio per 1000 is:-

Year.	Christians.	Moslems.	Jews.	Other Religions.	Total.
1926	22.1	31.6	23.9	20.0	29.0
1927	18.8	23.0	21.6	22.1	22.3
1928	21.4	25.9	23.3	24.6	24.9
1929	19.9	26.0	22.2	16.9	24.6
1930	22.7	32.4	23.8	25.7	29.7

The Births, Deaths and Infant Mortality rates of these sub-divisions of the population were as follows:

		Christians.	Moslems.	Jews.	Other Religions.	Whole Country.
1926	Births.	40.0	60.2	36.0	55.0	53.4
	Deaths.	17.9	28.6	12.1	34.9	24.3
	Infant Mortality.	158.0	172.5	108.1	170.9	163.0
1927	Births.	38.9	56.1	35.1	50.3	50.3
	Deaths.	20.1	33.0	13.4	28.1	28.0
	Infant Mortality.	187.2	216.7	115.3	156.6	200.5
1928	Births.	40.4	60.9	35.4	45.6	53.9
	Deaths.	18.9	35.1	12.1	21.0	29.0
	Infant Mortality.	157.9	203.5	95.8	121.2	186.3
1929	Births.	37.84	57.74	34.06	43.67	51.15
	Deaths.	17.93	31.67	11.79	26.69	26.50
	Infant Mortality.	155.79	204.91	89.78	166.66	186.47
1930	Births.	38.98	60.31	33.44	44.98	52.88
	Deaths.	16.22	27.90	9.60	19.18	23.14
	Infant Mortality.	134.43	169.55	69.00	118.07	154.28

(c) **Classification of Causes of Death.**

The deaths notified in the 19 principal towns of Palestine have been classified as in previous years according to the international nomenclature of causes of death.

6,892 deaths occurred in these towns and the classification is indicated in diagramatic form. The high percentage of total mortality ascribed to diarrhoea and enteritis under the age of two years and to lobar and broncho-pneumonia is worthy of note.

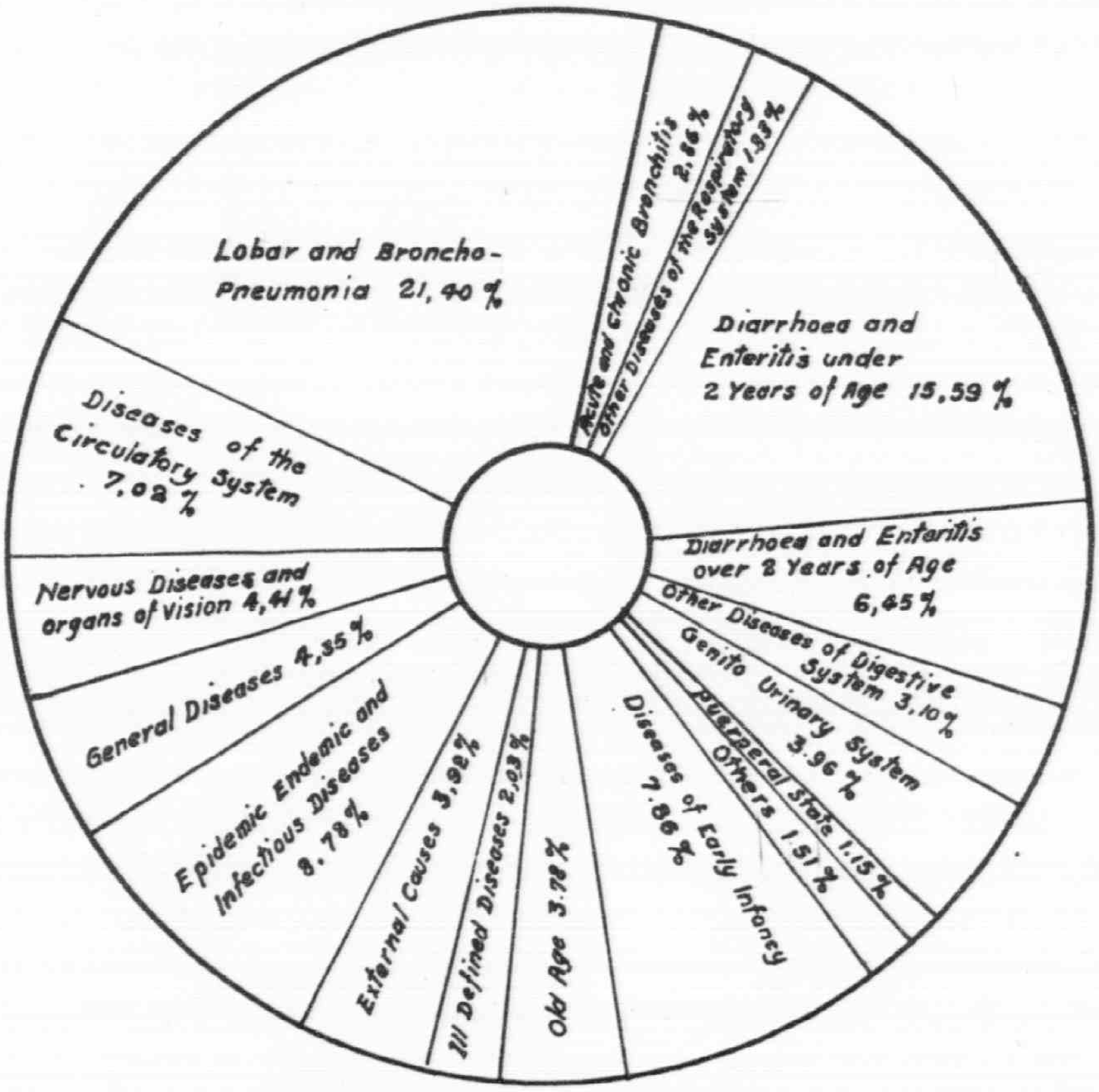
A graphical representation is also appended, of the proportion of cases and deaths from epidemic, endemic and infectious disease notified to the Department. It should be observed that in this case the figures represent notifications from the whole country and not, as in the case of the classification of deaths from all causes, from the large towns only.

Following upon the practice of previous years, the notifications of cases and deaths of malaria have been excluded as they are not entirely representative of conditions in the country generally.

The deaths from epidemic, endemic, and infectious diseases, represent 8.78% of the total deaths from all causes reported in Palestine.

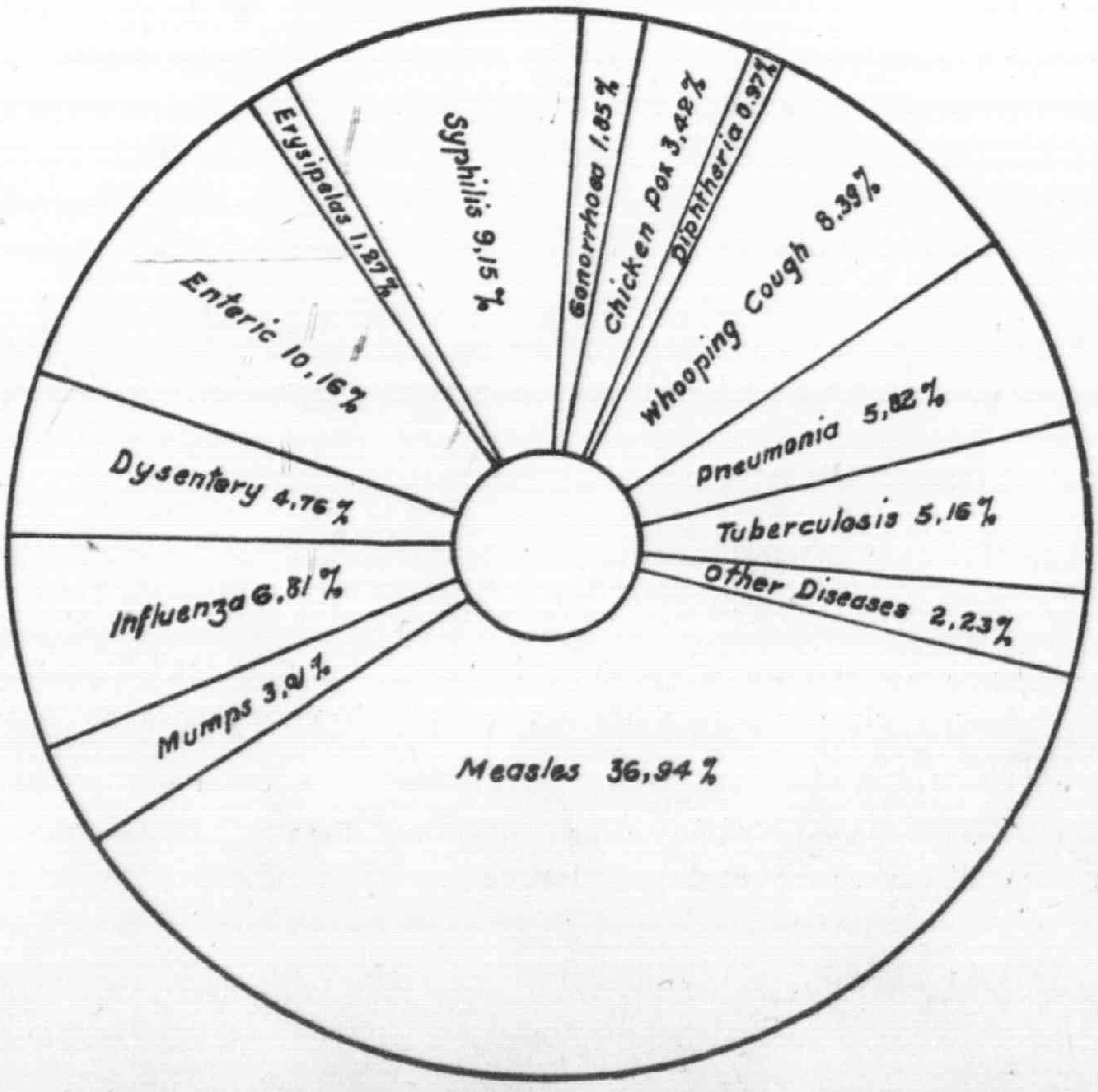
PROPORTION OF DEATHS FROM EPIDEMIC, ENDEMIC, INFECTIOUS, SYSTEMATIC AND OTHER DISEASES SHEWN AS PERCENTAGE OF TOTAL DEATHS IN ALL TOWNS OF PALESTINE.

TOTAL DEATHS = 6892.



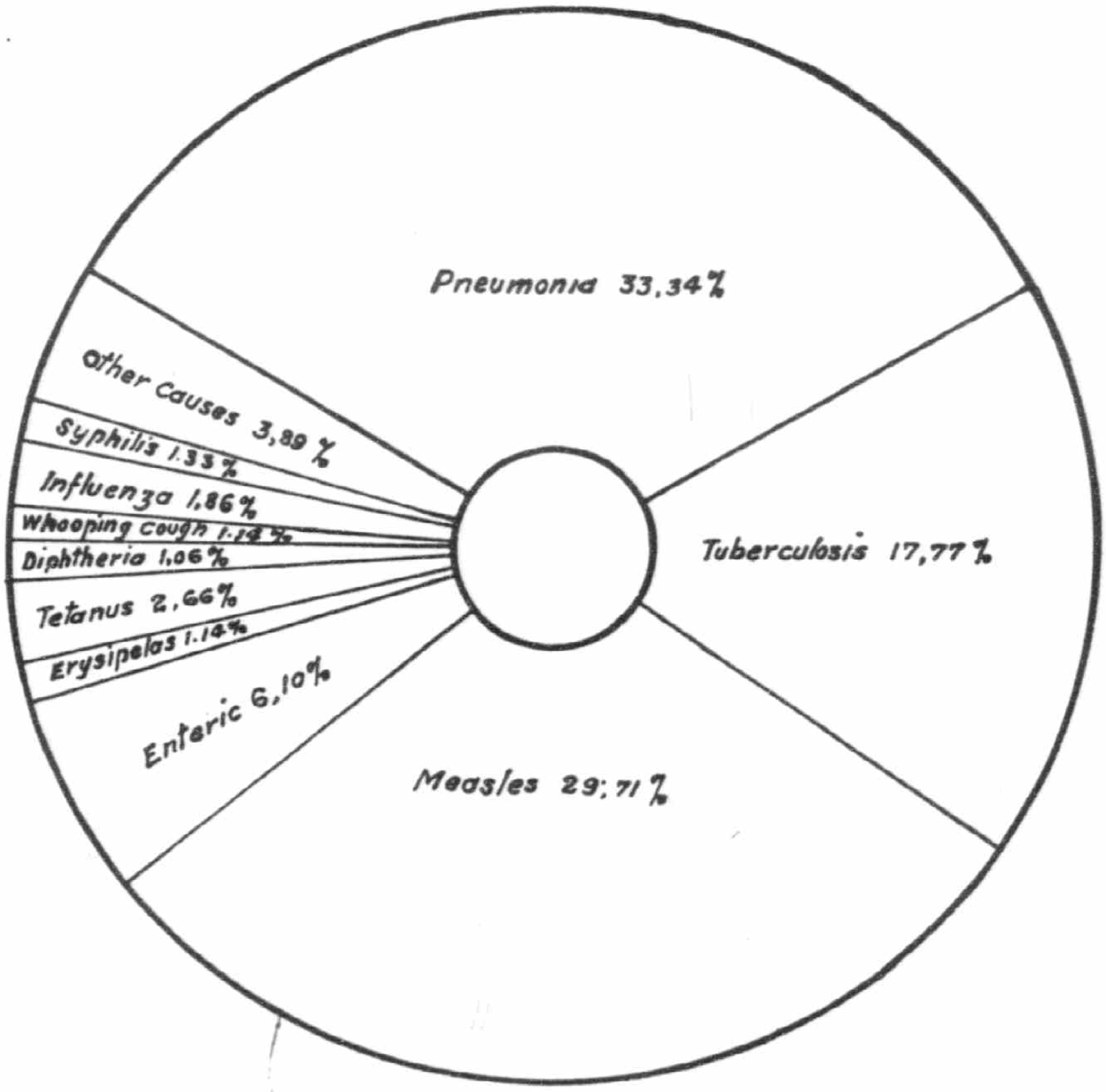
PROPORTION IN PERCENTAGES OF CASES OF EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES (MALARIA EXCEPTED) NOTIFIED IN PALESTINE, 1930.

TOTAL INCIDENCE = 10,877.



PROPORTION IN PERCENTAGES OF DEATHS FROM EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES (MALARIA EXCEPTED) NOTIFIED IN PALESTINE, 1930.

TOTAL INCIDENCE = 1131.



BIRTHS AND DEATHS - 1930.

Town, Village or District.	Jerusalem	District	Ramallah	District	Bethlehem	District	Hebron	District	Beersheba
DEATHS.									
Under 1 month	106	61	8	67	24	26	47	62	9
1 month to 1 year	204	238	13	192	70	63	174	274	21
1 to 2 years	109	162	5	132	15	31	94	149	22
2 to 5 years	75	107	3	91	4	9	28	67	7
5 to 10 years	32	21	1	25	3	2	10	30	—
10 to 20 years	43	14	1	15	2	3	9	31	3
20 to 50 years	245	81	4	78	15	14	44	102	3
Over 50 years	467	103	15	121	46	51	65	157	5
Unknown									
Total Deaths 1930	1281	787	50	721	179	199	471	872	70
Total Deaths 1929	1327	1288	76	876	185	237	733	1169	66
BIRTHS.									
Total Births 1930	3201	2181	143	1779	269	513	1275	2505	168
Total Births 1929	3083	2047	159	1587	263	506	1122	2288	146
INFANT MORTALITY									
Rate per 1000 Births 1930.	96.84	137.09	146.85	145.58	349.44	173.48	173.33	134.13	178.57
Rate per 1000 Births 1929.	101.20	188.07	251.57	207.30	338.40	195.65	274.49	215.90	212.32

BIRTHS AND DEATHS - 1930.

Town, Village or District.	Jaffa.	District.	Tel-Aviv.	Ramleh.	District.	Gaza.	District.	Majdal.	District.
DEATHS.									
Under 1 month.	100	50	25	20	60	47	112	20	84
1 month to 1 year	223	164	56	72	263	253	245	71	350
1 to 2 years	216	101	22	57	228	157	184	43	178
2 to 5 years	120	87	10	40	182	68	69	6	88
5 to 10 years	30	20	6	8	30	16	14	5	38
10 to 20 years	41	11	9	—	15	14	18	4	22
20 to 50 years	184	69	74	14	111	79	81	16	75
Over 50 years	164	104	169	37	151	101	83	23	101
Unknown									
Total Deaths 1930	1078	606	371	248	1040	735	806	188	936
Total Deaths 1929	1055	654	424	266	1267	601	801	211	866
BIRTHS									
Total Births 1930	2081	1904	1370	569	2619	1179	1796	377	2090
Total Births 1929	1854	1758	1413	481	2372	1216	1699	355	2068
INFANT MORTALITY									
Rate per 1000 Births 1930	155.21	112.39	59.12	161.68	123.33	254.45	198.77	241.38	207.65
Rate per 1000 Births 1929	195.25	119.45	75.72	222.45	160.20	202.30	220.32	287.32	208.05

BIRTHS AND DEATHS — 1930.

Town, Village or District.	Haifa	District	Acre	District	Nazareth	District
DEATHS.						
Under 1 month	60	84	10	36	18	25
1 month to 1 year	170	179	34	159	68	133
1 to 2 years	92	131	19	123	40	102
2 to 5 years	59	145	8	80	25	62
5 to 10 years	19	31	2	30	5	21
10 to 20 years	17	29	7	31	10	14
20 to 50 years	116	117	47	127	49	48
Over 50 years	162	108	39	131	60	60
Unknown.						
Total Deaths 1930	695	825	166	722	275	465
Total Deaths 1929	712	614	220	964	221	484
BIRTHS. Total Births 1930	1963	1558	324	1645	451	961
Total Births 1929	1637	1523	273	1546	396	824
INFANT MORTALITY Rate per 1000 Births 1930	117.16	168.80	135.80	118.54	190.68	164.41
Rate per 1000 Births 1929	141.72	154.95	142.85	151.35	179.29	212.37

BIRTHS AND DEATHS - 1930.

Town, Village or District	Nablus	District	Tulkarem	District	Tiberias	District	Safad	District	Beisan	District	Jenin	District
DEATHS												
Under 1 month.	26	137	12	97	12	15	17	69	14	8	11	133
1 month to 1 year	70	357	33	279	43	104	28	218	29	30	28	259
1 to 2 years	104	208	11	122	10	59	26	147	22	13	21	235
2 to 5 years	43	176	1	75	12	48	18	89	17	15	1	262
5 to 10 years	22	45	3	17	4	13	5	54	3	5	—	39
10 to 20 years	29	41	1	18	10	12	12	28	4	5	—	24
20 to 50 years	84	156	10	110	37	60	43	144	11	28	6	142
Over 50 years	72	151	13	96	41	38	43	98	16	20	7	142
Unknown								1				
Total Deaths 1930	450	1271	84	814	169	349	192	848	116	124	74	1236
Total Deaths 1929	499	1327	111	1179	162	375	211	778	106	134	65	1348
BIRTHS. Total Births 1930	929	2757	271	2128	446	673	417	1517	157	303	124	1944
Total Births 1929	871	2396	210	1837	385	680	456	1436	178	520	150	1989
INFANT MORTALITY Rate per 1000 Births 1930	103.33	179.18	166.05	176.69	123.31	176.52	107.91	189.18	273.88	125.41	314.52	201.64
Rate per 1000 Births 1929	182.54	236.21	219.04	280.34	116.88	188.23	120.61	183.84	162.92	84.61	120.00	260.93

SUMMARY OF BIRTHS AND DEATHS - 1930.

	Totals for Towns	Total for Districts excluding Beersheba
DEATHS.		
Under 1 month	586	1126
1 month to 1 year	1660	3507
1 to 2 years	1085	2305
2 to 5 years	545	1652
5 to 10 years	174	435
10 to 20 years	216	331
20 to 50 years	1081	1543
Over 50 years	1545	1715
Unknown	—	7
Total Deaths 1930	6892	12621
Total Deaths 1929	7251	14384
BIRTHS.		
Total Births 1930	15714	28873
Total Births 1929	14648	27094
INFANT MORTALITY		
Rate per 1000 Births 1930	142.92	160.46
Rate per 1000 Births 1929	163.70	198.78

Religions	Christians	Moslems	Jews	Others	Totals	Percentages
Populations	82590	588849	162467	9226	843132	
DEATHS.						
Under 1 month	92	1475	126	19	1712	8.88
1 month to 1 year	341	4547	249	30	5167	26.48
1 to 2 years	160	3094	107	29	3390	17.37
2 to 5 years	74	2040	61	22	2197	11.25
5 to 10 years	22	539	35	13	609	3.12
10 to 20 years	39	455	45	8	547	2.81
20 to 50 years	174	2144	287	19	2624	13.44
Over 50 years	437	2134	652	37	3260	16.70
Unknown	1	6	—	—	7	.03
Total Deaths	1340	16434	1562	177	19513	—
Deaths per 1000	16.22	27.90	9.60	19.18	23.14	100.00
BIRTHS.						
Total Births	3221	35517	5434	415	44587	—
Births per 1000	38.98	60.31	33.44	44.98	52.88	—
INFANT MORTALITY.						
Total Deaths under 1 year	433	6022	375	49	6879	—
Rate per 1000 Births	134.43	169.55	69.00	118.07	154.28	—

2. Epidemic Service.

The organization and equipment of the mobile epidemic service as described in previous reports were maintained. Conditions during the year did not necessitate the employment of these mobile units.

In Jerusalem, the horse-drawn disinfecting waggon was replaced by a Morris ton-truck, and the mules were disposed of. This has considerably increased the efficiency of the disinfecting service. This car is capable of being converted into an ambulance, in case of necessity. It is intended to obtain another similar car in 1931.

3. Training of Personnel.

An advanced course of training for the more senior of the sub-inspectors of the Department was held during the year. This course embraced theoretical and practical instruction in the following subjects:—Sanitation, infectious disease, disinfection, control of trades and industries, antimalarial measures.

Sixteen sub-inspectors completed the course and, of these, fourteen successfully passed the examinations subsequently held.

4. Disinfection.

The various disinfecting machines in possession of the Department have been maintained in serviceable condition. Three new machines of the "Thresh Furnace-Heated" type were installed during the year at Nablus Hospital, Acre Hospital, and Haifa Quarantine Lazarette respectively.

5. Infectious and Communicable Disease.

10,877 cases and 1131 deaths were notified compared with 12,289 cases and 1386 deaths in 1929. The decrease is principally due to the markedly lower incidence of measles and of influenza.

The principal causes of death amongst these diseases were pneumonia 377, measles 336, tuberculosis 201, enteric fevers 69.

(a) **Encephalitis Lethargica.** There were three cases in Haifa, Nazareth and Safad respectively. Those in Nazareth and Safad died.

(b) **Cerebro-Spinal Meningitis.** Sporadic cases occurred in the following towns:—Jaffa (2), Tel-Aviv (1), Haifa (1), Nazareth (1), Beisan (1). All were fatal.

(c) **Acute Poliomyelitis.** There were 9 cases with 3 deaths.

(d) **Chicken Pox.** The incidence of this disease remains practically stationary. The months of principal incidence were February and March.

(e) **Smallpox.** No cases occurred in Palestine.

(f) **Diphtheria.** Shows but slight variation from year to year. There were 106 cases with 12 deaths.

(g) **Whooping Cough.** Was again more prevalent. There were 913 cases with 13 deaths as compared with 477 cases and 20 deaths in 1929.

(h) **Pneumonia.** The notification of this disease is incomplete. 633 cases and 377 deaths were recorded.

(i) **Tuberculosis.** Notification of the various forms of this disease is also incomplete and this statement probably applies more in the case of tuberculosis of other organs than in that of the respiratory system. As at present recorded, it would appear from a review of the notifications in previous years in the large towns that between 70 and 75% of the total incidence of tuberculosis is of the respiratory type and that this percentage is gradually decreasing. This is in all probability due to improved notification of all forms of the disease, but a detailed survey of the incidence of tuberculosis is essential and it is proposed to undertake this in 1931.

A separate table is appended giving the details and distribution of the incidence of all classes of tuberculosis. This table, in general, shows but little variation from that of 1929 except in the case of three areas. In Beersheba, the cases notified were 76 with 3 deaths as compared with 22 cases and 15 deaths in the previous year. In this case the increase is due to more efficient notification of cases occurring in the Bedouin tribes. In the town of Haifa, 133 cases with 2 deaths are recorded as compared with 91 cases and 18 deaths in 1929, whilst in Safad there were 71 cases with 13 deaths against 108 with 7 deaths the previous year. These variations may be explained by the presence in Safad of a a hospital for treatment of tuberculosis, administered by the Hadassah Medical Organization. In 1929, the majority of the patients treated there were notified as from Safad, whereas in the year under review, cases were for purposes of notification, transferred to their place of origin.

(j) **Measles.** The decline in the incidence of this disease which commenced in the summer of 1929 continued and the number of cases notified in 1930 was 4018 with 336 deaths, one fourth of which occurred in December. This sudden rise occurring in December was accompanied by a markedly higher mortality rate. This, which during the first eleven months of the year had been 6.5%, rose in December to 13.7%.

(k) **Scarlet Fever.** There were 39 cases notified. No death due to this disease is recorded.

(l) **Erysipelas.** 139 cases with 13 deaths were recorded.

(m) **Puerperal Fever.** As in the case of pneumonia and tuberculosis, notification of this disease is incomplete. 24 cases with 11 deaths are recorded.

(n) **Typhoid Fever.** 875 cases with 64 deaths were notified. The case incidence shows a definite increase over that of the previous two years. The case mortality rate on the other hand was lower being 7.3% as compared with 9.1 in 1929, and 10.8 in 1928.

The rise in the number of cases was due in large measure to an outbreak during the summer in Haifa and in the colonies of the Emek. 387 cases occurred in these areas. The usual measures of isolation etc., together with a general protective inoculation of the population assisted in curtailing the epidemic.

The incidence in Jaffa and Tel-Aviv areas shows but little variation from that of previous years, whilst that of Jerusalem indicates a steady though slow decline since 1927.

(o) **Paratyphoid Fevers.** 231 cases with 5 deaths were notified as compared with 94 cases and 9 deaths in the previous year. Over 50% of the total cases occurred in Jaffa and Tel-Aviv areas.

(p) **Dysenteries.** A further decline in prevalence is to be recorded, 518 cases with 7 deaths having been notified as compared with 817 with 12 deaths in the previous year. There has been throughout the country a regular decrease in the incidence of this disease during the past four years which has been particularly evident in certain of the towns. The following table is of interest in this connection.

Year	TOWNS.												Whole	
	Jerusalem		Jaffa		Tel-Aviv		Haifa		Tiberias		Safad			
	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
1926	69	1	94	2	564	25	170	1	338	4	50	—	1731	37
1927	115	3	60	2	481	8	297	4	379	1	88	5	1782	31
1928	95	6	19	1	322	6	276	12	204	3	105	1	1307	38
1929	101	5	23	—	271	2	106	1	64	—	54	1	817	12
1930	57	1	30	—	127	2	78	2	37	—	23	—	578	7

Laboratory results indicate that 25% of the cases examined were bacillary in origin.

The striking results which follow the improvement of the water supply and of the sanitary conditions of a community are well exemplified in the cases of Tiberias and of Petah-Tiqvah respectively.

In the case of the former, the Tiberias water supply scheme was completed in July, 1927. By the end of that year 35,867 cubic metres had been supplied to the town whereas in 1930, 153,247 cubic metres were supplied. In 1927 there were 338 cases of dysentery as compared with 37 in 1930.

In the case of Pétah-Tiqvá, a strict control was instituted of all trades directly connected with the preparation of commodities used as food or drink. Conditions were imposed necessitating the provision on the premises of the public water supply and of suitable sanitary installations. In 1927, only 4.6% of the establishments were so provided, while in 1930 this figure had risen to 60%. During this period the incidence of dysentery has steadily decreased from 63 cases in 1927 to 13 in 1930.

Diagrammatic representations of these two examples are given on pages 25, 26 and 27.

(q) **Undulant Fever**. Eleven cases and two deaths were notified.

(r) **Typhus.** 30 cases with 1 death were notified. This disease continues to be sporadic in distribution.

(s) **Relapsing Fever.** There were 21 cases with 1 death. Of these, 6 cases occurred in neigbouring houses in the old city of Jerusalem.

(t) **Schistosomiasis.** 7 cases were recorded. There were no deaths. All the cases (with the exception of one infected in the Yemen), received the infection from water courses in Palestine already recognized as being infected with S. haematobium.

(u) **Anthrax.** There were three cases. No death occurred.

(v) **Tetanus.** There were 42 cases of which 30 terminated fatally.

(w) **Leprosy.** 4 new cases were notified.

DISINFECTING SERVICE, 1930.

	* Method A.	Method B.	No. of articles or bundles disinfected.
Jerusalem.	22	454	1593
Ramallah.	—	31	1456
Bethlehem.	—	62	3274
Hebron.	15	66	5113
Beersheba.	—	47	7210
Jaffa.	4	543	47825
Tel-Aviv.	—	—	—
Ramleh.	—	25	213
Gaza.	1	199	407
Majdal.	—	11	1167
Haifa.	11	1183	135365
Acre.	25	34	101
Nazareth.	3	517	2510
Kantara.	—	—	—
Nablus.	1	1953	7867
Tulkarem.	1	18	4075
Tiberias.	24	505	1828
Safad.	27	110	6460
Beisan.	43	—	2381
Jenin.	—	675	21809
TOTALS.	177	6433	250654

* Disinfection of house of patient (and neighbouring houses where necessary).

Method A. For diseases originating in vermin.

Method B. For other diseases.

TIBERIAS WATER SUPPLY.

Diagram showing the steady decline in cases of dysentery in Tiberias with the progressive increase of water supplied from a Municipal Water Supply under the bacteriological and chemical control of the Department of Health.

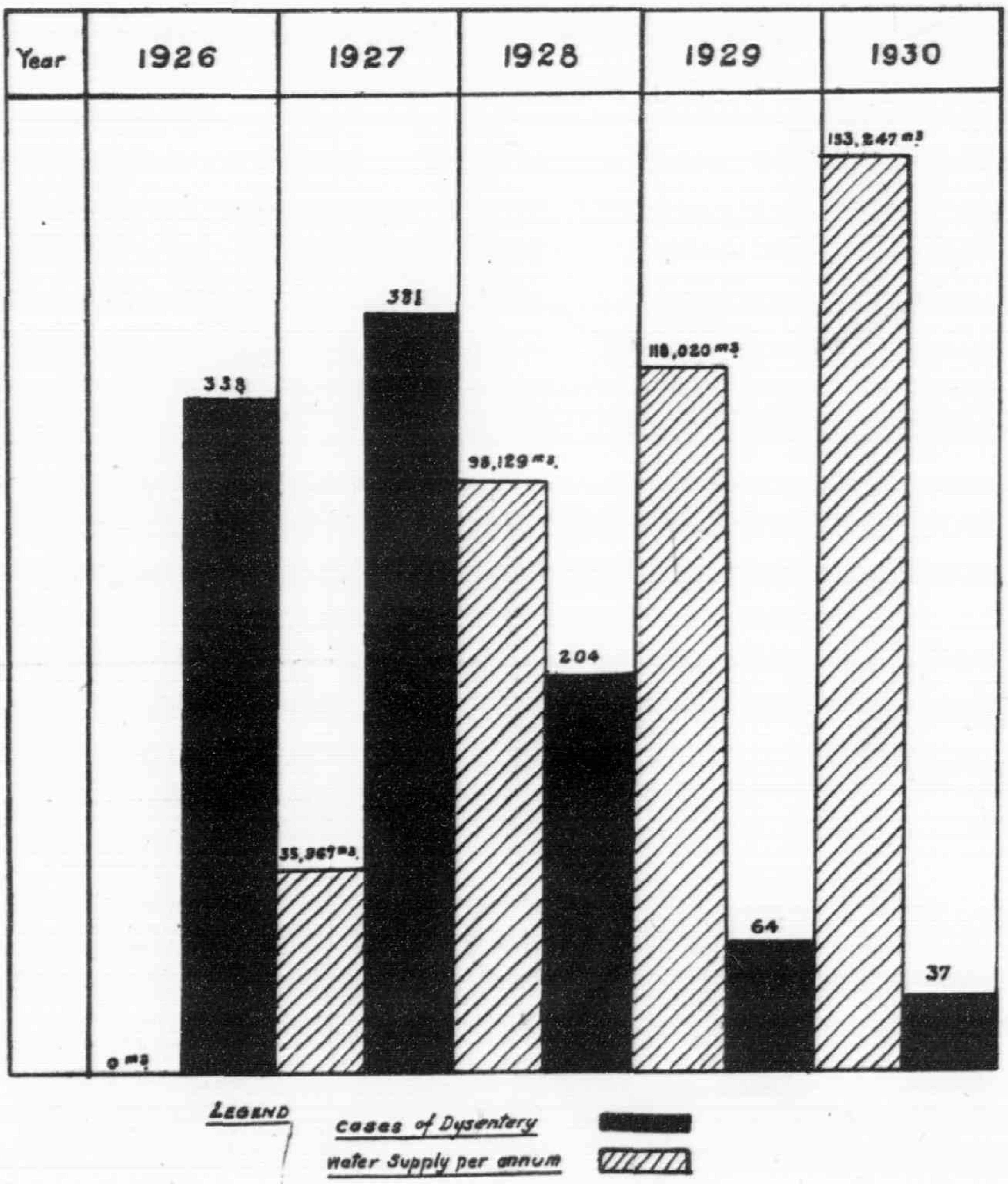
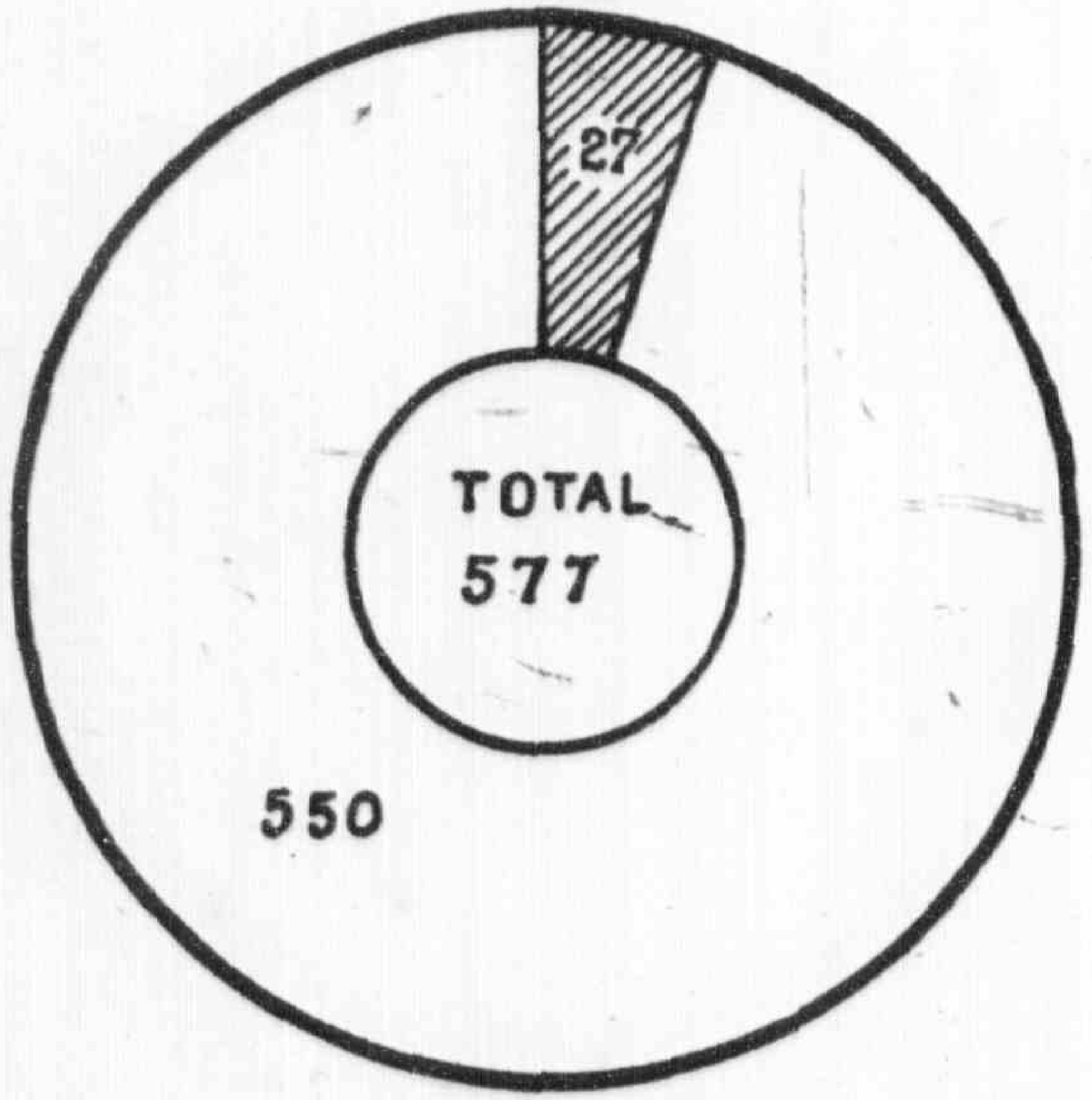


Diagram showing the progressive rise in the number of public establishments under control by the Department of Health and the steady decline in number of cases of Dysentery in Petah Tikvah.

1927.



63 cases of dysentery.

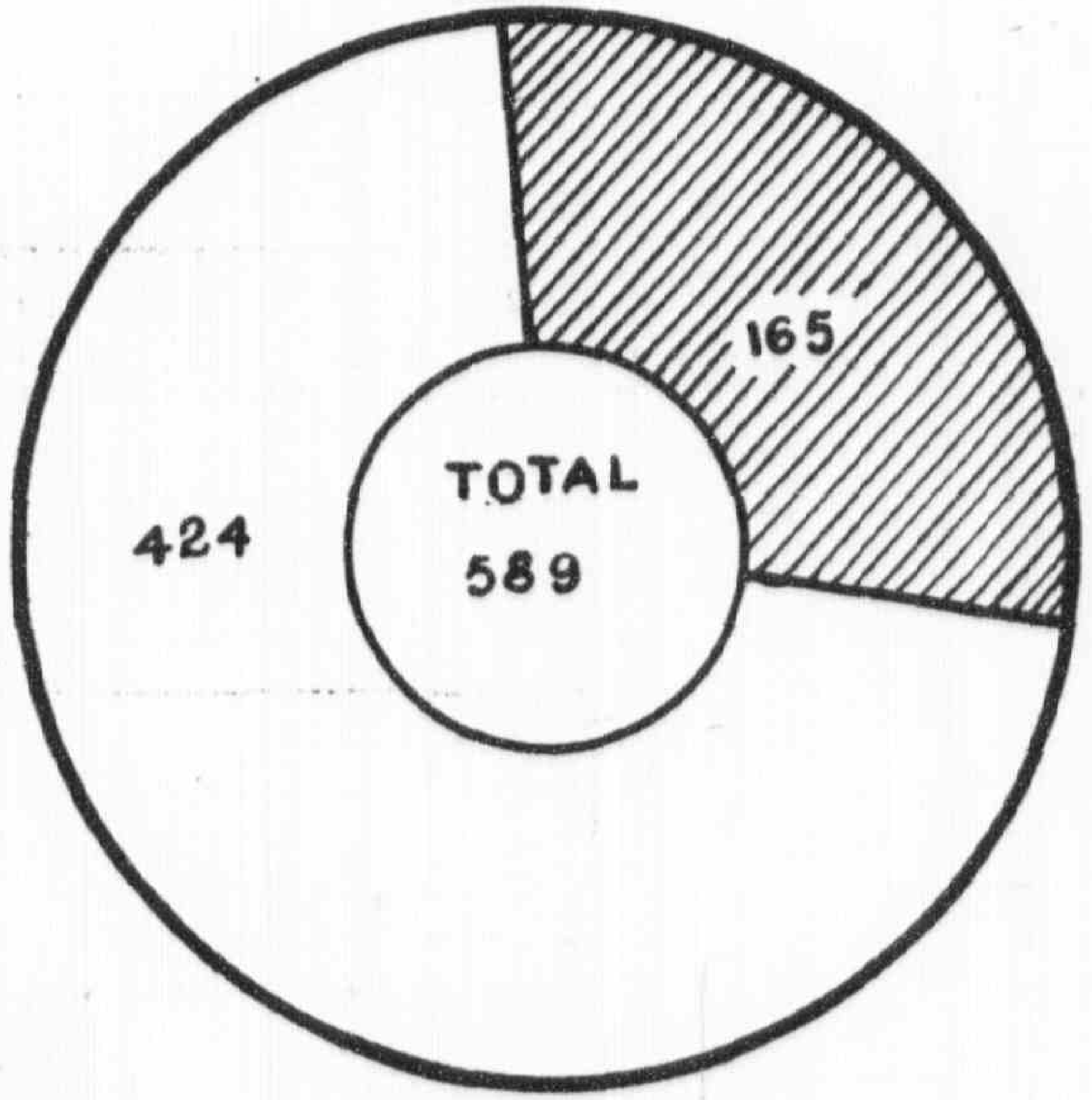
Nature of Building or Trade.	Private Building.	Hotels.	Schools.	Synagogues.	Pharmacies.	Cinema Halls.	Cafes, Restaurants.	Bakeries.	Aerated Water Fact.	Factories.	Barber Shops.	Butcher Shops.	Milk Products.
Premises Controlled.	15	2	1	—	1	1	1	3	—	3	—	—	—
Premises not yet controlled.	479	4	9	6	1	1	14	6	6	2	6	13	4

LEGEND:

○ Premises not yet controlled.

▨ Premises controlled.

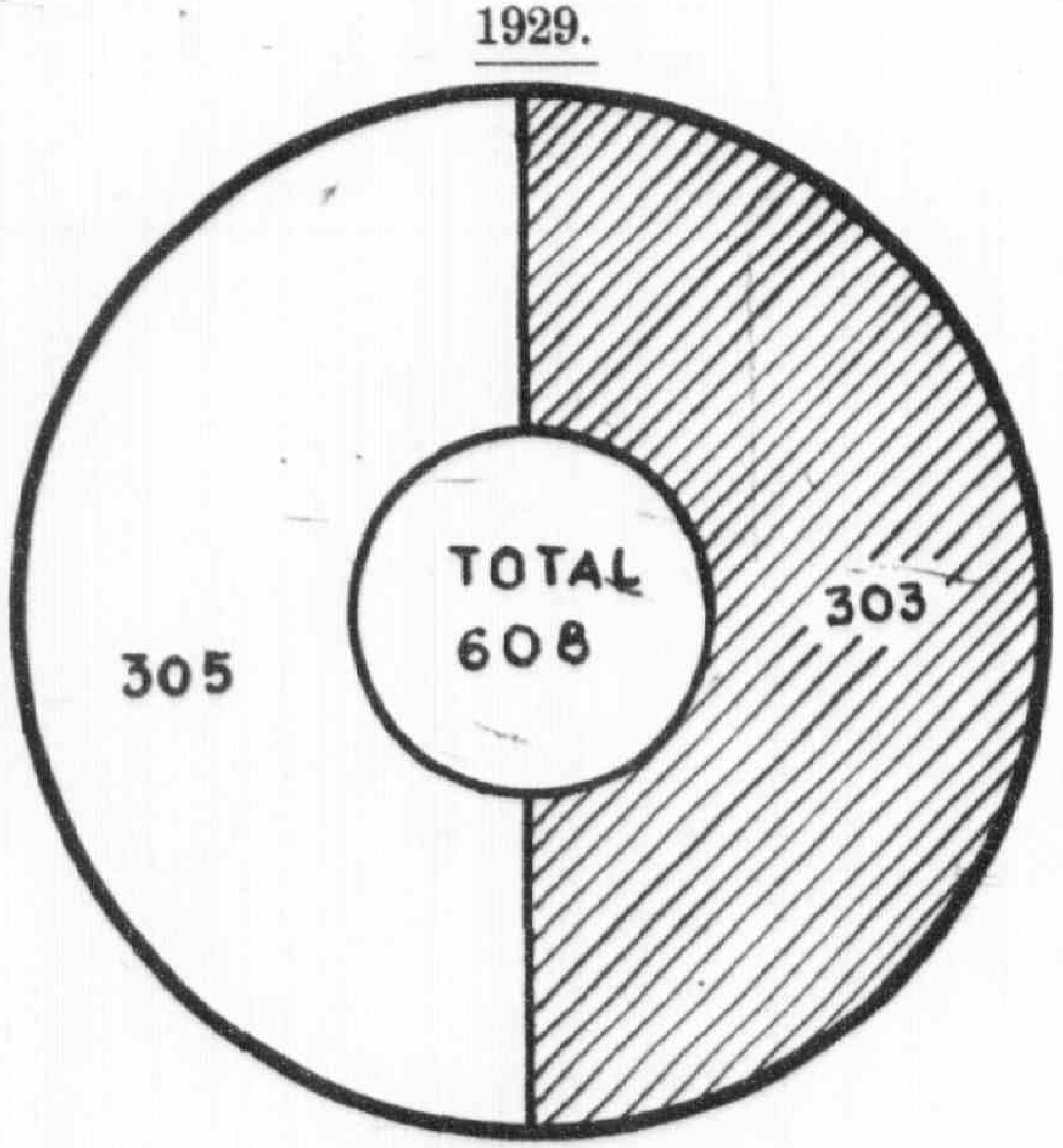
1928.



31 cases of dysentery.

Nature of Building or trade.	Private Building.	Hotels.	Schools.	Synagogues.	Pharmacies.	Cinema Halls.	Cafes, Restaurants.	Bakeries.	Aerated Water Fact.	Factories.	Barber Shops.	Butcher Shops.	Milk Products.
Premises controlled.	95	4	8	2	2	2	12	11	10	6	5	5	3
Premises not yet controlled.	399	1	2	4	—	—	6	2	—	—	—	8	2

Diagram showing the progressive rise in the number of public establishments under control by the Department of Health and the steady decline in number of cases of Dysentery in Petah Tikvah.

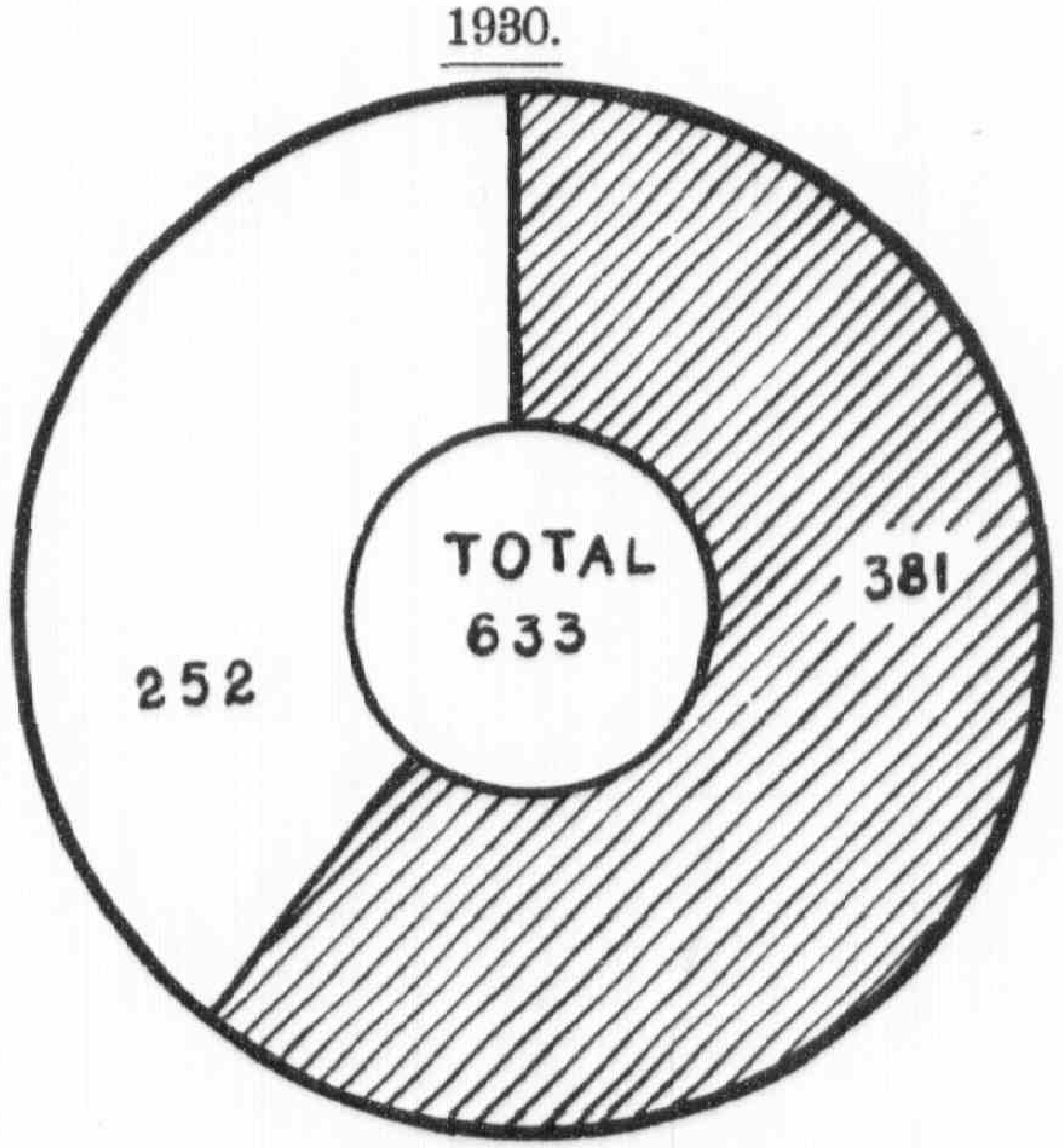


23 cases of dysentery.

LEGEND:

○ Premises not yet controlled.

▨ Premises controlled.



13 cases of dysentery.

Nature of Building or Trade.	Private Buildings.	Hotels.	Schools.	Synagogues.	Cinema Halls.	Pharmacies.	Cafes, Restaurants.	Bakeries.	Aerated Water Fact.	Factories.	Barber Shops.	Butcher Shops.	Milk Products.
Premises Controlled.	217	5	9	3	3	3	14	13	10	5	5	12	4
Premises not yet controlled.	297	—	1	3	—	—	—	—	—	—	1	1	2

Nature of Building or Trade.	Private Buildings.	Hotels.	Schools.	Synagogues.	Pharmacies.	Cinema Halls.	Cafes, Restaurants.	Bekeries.	Aerated Water Fact.	Factories.	Barber Shops.	Butcher Shops.	Milk products.
Premises Controlled.	292	5	9	4	3	3	14	13	10	5	5	13	5
Premises not yet controlled.	247	—	1	2	—	—	—	—	—	—	1	—	1

CASE AND DEA

	Jerusalem Town.		Jerusalem District.		Ramallah and District.		Bethlehem and District.		Hebron and District.		Beersheba and District.		Jaffa Town.		Jaffa District.	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Cerebro-Spinal Meningitis	—	—	—	—	—	—	—	—	—	—	—	—	2	2	—	—
Acute Poliomyelitis	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chicken Pox	67	—	5	—	46	—	3	—	2	—	1	—	2	—	21	—
Diphtheria	17	3	—	—	—	—	—	—	—	—	—	—	2	1	9	1
Whooping Cough	15	—	—	—	—	—	6	—	—	—	—	—	16	—	34	—
Pneumonia	118	89	14	7	2	1	41	26	—	—	25	12	97	94	18	18
Influenza	85	3	3	—	86	—	5	—	—	—	—	—	—	—	3	—
Tuberculosis	76	52	4	1	9	7	17	17	2	1	76	5	47	42	7	6
Measles	91	8	186	15	373	21	37	1	183	10	45	11	27	7	48	1
German Measles	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mumps	43	1	1	—	—	—	2	—	—	—	15	—	26	—	46	—
Scarlet Fever	21	—	—	—	—	—	2	—	—	—	—	—	2	—	2	—
Erysipelas	36	6	3	1	—	—	3	—	—	—	1	—	11	2	9	—
Puerperal Fever	4	1	2	1	—	—	2	—	—	—	1	1	7	4	—	—
Typhoid Fever	135	6	25	2	2	1	12	—	4	—	3	—	46	9	80	4
Para-typhoid Fever	29	1	6	—	—	—	2	—	—	—	—	—	16	—	45	—
Dysentery all classes	57	1	—	—	—	—	1	—	—	—	—	—	30	1	91	—
Undulant Fever	5	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Typhus	7	—	1	—	—	—	—	—	—	—	—	—	1	—	2	—
Relapsing Fever	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dengue	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Leishmaniasis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Epidemic Ulcer	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Schistosomiasis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Ankylostomiasis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Blackwater Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Anthrax	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tetanus	3	1	2	1	—	—	1	1	1	1	1	—	11	11	4	3
Actinomycosis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Leprosy	4	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pellagra	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydrophobia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Syphilis	158	5	1	1	—	—	—	—	542	—	40	—	1	—	—	—
Gonorrhoea	30	—	—	—	—	—	—	—	—	—	5	1	1	—	—	—
Encephalitis Lethargica	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Scurvy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTALS.	1009	180	253	29	518	30	134	45	734	12	213	30	345	173	421	33

CASE AND DEATH INCIDENCE OF INFECTIOUS DISEASES BY LOCATIONS FOR 1930.

Jaffa Town.	Jaffa District.		Tel-Aviv.		Ramleh and District.		Gaza and District.		Majdal and District.		Haifa Town.		Haifa District.		Acre and District.		Nazareth and District.		Nablus and District.		Tulkarem and District.		Tiberias and District.		Safad and District.
Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases
2	—	—	1	1	—	—	—	—	—	—	1	1	—	—	—	—	1	1	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	4	1	—	—	—	—	1	—	—	—	—	—	1	—	1
—	21	—	10	—	16	—	—	—	1	—	38	—	37	—	2	—	52	—	23	—	7	—	8	—	20
1	9	1	27	1	3	—	—	—	—	—	15	2	4	—	1	1	5	2	—	—	—	—	7	—	16
—	34	—	37	2	4	—	—	—	—	—	28	—	38	—	4	—	47	—	218	—	202	7	120	2	118
94	18	18	27	27	1	—	54	15	12	2	16	1	10	5	27	5	31	15	44	15	32	8	20	14	21
—	3	—	1	1	90	—	8	—	11	—	169	4	31	—	50	2	21	—	—	—	40	1	4	—	134
42	7	6	27	22	2	2	18	5	2	2	133	2	27	1	20	4	8	6	7	6	3	1	1	2	71
7	48	1	98	1	177	1	342	43	247	61	17	4	402	42	41	—	137	39	252	11	47	9	108	18	164
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
—	46	—	42	—	72	—	1	1	—	—	10	—	4	—	8	—	10	1	30	—	6	—	11	—	1
—	2	—	9	—	—	—	—	—	—	—	2	—	—	—	—	—	1	—	—	—	—	—	—	—	—
2	9	—	11	—	—	—	5	1	—	—	12	—	8	—	7	—	1	—	17	2	1	1	12	—	1
4	—	—	—	—	1	—	1	1	—	—	1	1	—	—	—	—	1	1	3	1	—	—	1	—	—
9	80	4	50	1	—	—	31	4	—	—	240	15	44	2	10	—	103	8	34	5	—	—	36	6	17
—	45	—	80	1	4	—	1	—	—	—	14	2	4	—	1	—	4	1	1	—	—	—	18	—	6
1	91	—	127	2	7	—	—	—	—	—	78	2	32	—	—	—	24	1	1	—	7	—	37	—	23
—	—	—	2	—	—	—	—	—	—	—	2	—	—	—	—	—	1	—	—	—	—	—	1	1	—
—	2	—	1	—	—	—	1	—	—	—	4	—	4	1	—	—	2	—	—	—	—	—	1	—	6
—	—	—	—	—	—	—	—	—	—	—	2	—	2	—	2	—	5	—	1	1	—	—	2	—	1
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19
—	—	—	—	—	—	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	1	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
—	—	—	—	—	1	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
11	4	3	2	1	1	—	4	3	1	1	1	1	1	—	3	3	2	—	3	2	—	—	1	1	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	2	—	1	—	—
—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	3
—	—	—	1	1	12	—	7	—	—	—	222	8	—	—	—	—	—	—	—	—	—	—	—	—	12
—	—	—	—	—	1	—	1	—	—	—	155	—	5	—	2	—	—	—	—	—	—	—	—	—	1
—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	1	—	—	—	—	—	—	1
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
173	421	33	556	62	392	3	474	73	274	66	1171	44	654	51	179	16	458	76	635	44	350	27	391	44	646

OUS DISEASES BY LOCATIONS FOR 1930.

Majdal and District.		Haifa Town.		Haifa District.		Acre and District.		Nazareth and District.		Nablus and District.		Tulkarem and District.		Tiberias and District.		Safad and District.		Beisan and District.		Jenin and District.		TOTALS.	
Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
—	—	1	1	—	—	—	—	1	1	—	—	—	—	—	—	—	—	1	1	—	—	6	6
—	—	4	1	—	—	—	—	1	—	—	—	—	—	1	—	1	1	—	—	—	—	9	3
1	—	38	—	37	—	2	—	52	—	23	—	7	—	8	—	20	—	10	—	1	—	372	—
—	—	15	2	4	—	1	1	5	2	—	—	—	—	7	—	16	1	—	—	—	—	106	12
—	—	28	—	38	—	4	—	47	—	218	—	202	7	120	2	118	2	5	—	21	—	913	13
12	2	16	1	10	5	27	5	31	15	44	15	32	8	20	14	21	13	20	10	3	—	633	377
11	—	169	4	31	—	50	2	21	—	—	—	40	1	4	—	134	10	—	—	—	—	741	21
2	2	133	2	27	1	20	4	8	6	7	6	3	1	1	2	71	15	1	1	4	1	562	201
247	61	17	4	402	42	41	—	137	39	252	11	47	9	108	18	164	15	20	—	976	18	4018	336
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	—	—	—	—	—	9	—
—	—	10	—	4	—	8	—	10	1	30	—	6	—	11	—	1	—	—	—	—	—	328	3
—	—	2	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	39	—
—	—	12	—	8	—	7	—	1	—	17	2	1	1	12	—	1	—	1	—	—	—	139	13
—	—	1	1	—	—	—	—	1	1	3	1	—	—	1	—	—	—	—	—	—	—	24	11
—	—	240	15	44	2	10	—	103	8	34	5	—	—	36	6	17	1	3	—	—	—	875	64
—	—	14	2	4	—	1	—	4	1	1	—	—	—	18	—	6	—	—	—	—	—	231	5
—	—	78	2	32	—	—	—	24	1	1	—	7	—	37	—	23	—	3	—	—	—	518	7
—	—	2	—	—	—	—	—	1	—	—	—	—	—	1	1	—	—	—	—	—	—	11	2
—	—	4	—	4	1	—	—	2	—	—	—	—	—	1	—	6	—	—	—	—	—	30	1
—	—	2	—	2	—	2	—	5	—	1	1	—	—	2	—	1	—	—	—	—	—	21	1
—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19	—	—	—	—	—	19	—
—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—
—	—	—	—	—	—	—	—	—	—	—	—	3	—	1	—	—	—	—	—	—	—	7	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—
1	1	1	1	1	—	3	3	2	—	3	2	—	—	1	1	—	—	—	—	—	—	42	30
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	1	—	—	—	—	2	—	1	—	—	—	—	—	—	—	7	2
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	3	3	—	—	—	—	4	4
—	—	222	8	—	—	—	—	—	—	—	—	—	—	—	—	12	—	—	—	—	—	996	15
—	—	155	—	5	—	2	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	202	1
—	—	1	—	—	—	—	—	1	1	—	—	—	—	—	—	1	1	—	—	—	—	3	2
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
274	66	1171	44	654	51	179	16	458	76	635	44	350	27	391	44	646	62	64	12	1006	19	10877	1131

CASE AND DEATH INCIDENCE OF INFECTIOUS DISEASES BY MONTHS FOR THE YEAR 1930.

	January		February		March		April		May		June		July		August		September		October		November		December		TOTALS	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Cerebro-Spinal Meningitis	2	2	-	-	1	1	-	-	-	-	2	2	-	-	-	-	-	-	-	-	1	1	-	-	6	6
Acute Poliomyelitis	1	1	1	-	1	-	1	1	-	-	3	1	-	-	1	-	-	-	1	-	-	-	-	-	9	3
Chicken Pox	43	-	71	-	82	-	27	-	55	-	37	-	19	-	7	-	3	-	9	-	5	-	14	-	372	-
Diphtheria	7	1	11	-	13	-	2	-	2	1	1	-	7	1	7	1	16	1	14	1	12	3	14	3	106	12
Whooping Cough	30	-	14	-	36	-	108	-	33	2	119	5	53	-	48	-	55	1	214	1	81	4	122	-	913	13
Pneumonia	53	33	45	23	41	20	55	35	62	32	56	36	22	14	29	20	24	14	40	23	70	50	136	77	633	377
Influenza	58	1	32	-	7	-	12	-	72	2	28	-	7	1	6	-	2	-	74	2	218	12	225	3	741	21
Tuberculosis	37	16	29	13	56	17	54	16	45	12	54	15	62	14	41	15	41	20	33	14	55	24	55	25	562	201
Measles	313	6	276	18	307	12	242	22	301	16	313	25	183	7	128	7	138	3	313	13	483	67	1021	140	4018	336
German Measles	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	9	-
Mumps	15	-	78	-	33	-	18	-	13	-	30	1	41	-	30	1	22	-	30	-	5	1	13	-	328	3
Scarlet Fever	-	-	8	-	5	-	1	-	2	-	2	-	7	-	5	-	1	-	1	-	4	-	3	-	39	-
Erysipelas	11	1	19	-	9	1	14	1	11	-	15	3	11	-	11	2	6	-	15	3	7	1	10	1	139	13
Puerperal Fever	3	1	1	1	1	-	1	1	-	-	2	1	3	1	1	-	2	1	5	2	2	1	3	2	24	11
Typhoid Fever	41	5	30	3	22	-	42	4	27	1	127	5	170	12	137	11	101	7	85	7	51	5	42	4	875	64
Para-typhoid Fever	18	-	6	1	7	-	6	-	10	1	20	1	29	-	26	-	30	-	30	1	33	1	16	-	231	5
Dysentery all classes	33	1	31	-	16	-	28	-	86	1	63	-	40	1	33	-	38	1	41	-	52	-	57	3	518	7
Undulant Fever	-	-	-	-	3	1	2	-	-	-	1	-	-	-	-	-	4	1	-	-	-	-	1	-	11	2
Typhus	1	-	1	-	5	-	2	-	2	-	2	1	2	-	3	-	1	-	1	-	8	-	2	-	30	1
Relapsing Fever	2	-	2	-	1	-	-	-	3	-	5	-	1	-	4	-	2	-	-	1	1	-	-	-	21	1
Dengue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-
Leishmaniasis	-	-	-	-	17	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-
Epidemic Ulcer	1	-	-	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	5	-
Schistosomiasis	1	-	1	-	1	-	1	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	-	-	7	-
Ankylostomiasis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blackwater Fever	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Anthrax	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	3	-
Tetanus	7	3	1	1	5	3	1	1	7	6	3	3	5	4	4	3	2	1	1	1	5	3	1	1	42	30
Actinomycosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leprosy	-	-	-	-	-	2	1	-	-	-	-	-	1	-	-	-	1	-	1	-	2	-	1	-	7	2
Pellagra	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Hydrophobia	-	-	-	-	-	-	-	-	-	-	4	4	-	-	-	-	-	-	-	-	-	-	-	-	4	4
Syphilis	71	1	73	-	119	1	109	-	58	-	84	-	93	1	61	-	146	1	69	6	49	5	64	-	996	15
Gonorrhoea	10	-	15	-	18	-	17	-	20	-	22	-	17	-	23	1	21	-	12	-	14	-	13	-	202	1
Encephalitis Lethargica	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	3	2
Scurvy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS.	761	73	747	61	806	58	746	81	811	74	996	103	782	56	607	61	657	51	990	75	1159	178	1815	260	10877	1131

TUBERCULOSIS CLASSIFICATION.

Towns of Palestine.

	Respiratory System.		Meninges and Central Nervous System, generally.		Intestines and Peritonium		Vertebral Column.		Joints.		Skin and Sub-Cutaneous cellular tissue.		Bones (Vertebral Column excluded)		Lymphatic system (mesenteric & retro-peritoneal glands excepted).		Genito-urinary System.		Organs other than the above.		Disseminated acute.		Disseminated chronic.		TOTALS.		Respiratory System.		Meninges and Central Nervous System, generally.		Intestines and Peritonium	
	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
Jerusalem.	59	35	9	9	3	3	-	-	1	1	1	1	-	-	-	-	1	1	-	-	-	-	-	-	74	50	5	2	-	-	-	-
Ramallah.	3	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	3	3	1	-	1	1
Bethlehem.	5	5	-	-	3	3	-	-	-	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	10	10	4	4	-	-	3	3
Hebron.	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-
Beersheba.	16	1	-	-	-	-	-	-	-	-	8	-	1	-	-	-	-	-	2	-	-	-	-	-	27	1	36	2	-	-	2	-
Jaffa.	37	32	-	-	6	6	-	-	-	-	-	-	1	1	-	-	-	-	-	-	2	2	1	1	47	42	4	3	2	2	1	1
Tel-Aviv	24	19	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	22	-	-	-	-	-	-
Ramleh.	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-
Gaza.	12	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	5	5	-	-	-	-	-
Majdal.	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-
Haifa.	71	2	1	-	9	-	3	-	11	-	4	-	3	-	31	-	-	-	-	-	-	-	-	-	133	2	15	1	9	-	-	-
Acre.	7	-	-	-	-	-	-	-	1	-	2	-	1	-	6	1	-	-	-	-	-	-	-	-	17	1	2	2	-	-	-	-
Nazareth.	5	3	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	5	1	1	-	-	-	-
Nablus.	3	3	1	1	1	1	-	-	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	7	6	-	-	-	-	-	-
Tulkarem.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-
Tiberias.	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-
Safad.	71	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	71	13	-	-	-	-	-	-
Beisan.	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Jenin.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Towns.	321	129	14	13	25	16	3	-	14	2	15	1	7	1	39	2	2	2	2	-	2	2	1	1	445	169	76	18	12	2	7	5
Villages.	76	18	12	2	7	5	2	-	3	1	7	-	6	-	2	1	1	-	-	-	-	-	-	-	116	27						
TOTALS.	397	147	26	15	32	21	5	-	17	3	22	1	13	1	41	3	3	2	2	-	2	2	1	1	561	196						

TUBERCULOSIS CLASSIFICATION.

e.

Villages of Palestine.

Lymphatic system (mesenteric & retro-peritoneal glands excepted).		Genito-urinary System.		Organs other than the above.		Disseminated acute.		Disseminated chronic.		TOTALS.		Respiratory System.		Meninges and Central Nervous System, generally.		Intestines and Peritonium		Vertebral Column.		Joints.		Skin and sub-Cutaneous cellular tissue.		Bones (Vertebral Column excluded).		Lymphatic system (mesenteric & retro-peritoneal glands excepted).		Genito-urinary system.		Disseminated acute.		Disseminated chronic.		TOTALS.	
C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
-	-	1	1	-	-	-	-	-	-	74	50	5	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	2
-	-	-	-	-	-	-	-	-	-	4	4	3	3	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	4
1	1	1	1	-	-	-	-	-	-	10	10	4	4	-	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7
-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	2	-	-	-	-	-	27	1	36	2	-	-	2	-	-	-	1	-	7	-	2	-	-	-	1	-	-	-	-	-	49	2
-	-	-	-	-	-	2	2	1	1	47	42	4	3	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	6
-	-	-	-	-	-	-	-	-	-	27	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	12	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	6	-
-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	133	2	15	1	9	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	27	1
6	1	-	-	-	-	-	-	-	-	17	1	2	2	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	3	3
-	-	-	-	-	-	-	-	-	-	7	5	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
-	-	-	-	-	-	-	-	-	-	7	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	2	1
-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	71	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	4	-
39	2	2	2	2	-	2	2	1	1	445	169	76	18	12	2	7	5	2	-	3	1	7	-	6	-	2	1	1	-	-	-	-	-	116	27
2	1	1	-	-	-	-	-	-	-	116	27																								
41	3	3	2	2	-	2	2	1	1	561	196																								

6. Vaccinations—1930

	Results of Observations.	Towns.	Villages.	Persons entering Palestine.		Totals.
				Haifa Port.	Jaffa Port.	
Primary Vaccinations.	Successful.	11009	26872	—	17	37898
	Unsuccessful.	717	1780	—	—	2497
	Not Observed.	2255	1288	—	1	3544
Re-Vaccinations.	Successful.	691	945	307	1048	2991
	Unsuccessful.	147	462	414	1577	2600
	Not Observed.	1233	63	292	100	1688
TOTALS.		16052	31410	1013	2743	51218

7. Malaria and Antimalaria Measures.

(a) Incidence of Malaria.

The rainfall of 1929-30 though still above the average of past years (526 mm) was less than the preceding winter which was the highest experienced since 1920 and was followed by an increased incidence of malaria in 1929 over previous years. The general incidence of malaria in 1930 was slightly less than that of 1929. Spleen rates in town children were considerably lower though the rate for village children was approximately the same as in 1929. The percentage of malaria cases amongst attendances at dispensaries was the same.

(b) Spleen Rate.

Year.	Number of towns or villages.	Number of children examined.	Number of children with enlarged spleen. Degree of Enlargement.			Spleen Rate.
			Slight.	Moderate.	Great	
			TOWN SCHOOL CHILDREN.			
1926	18	10971	146	35	5	1.7%
1927	19	10647	295	34	5	3.1%
1928	19	14922	292	39	1	2.2%
1929	19	13699	276	53	13	2.5%
1930	19	16894	210	45	7	1.5%
			VILLAGE CHILDREN.			
1926	563	37528	2357	1204	349	10.4%
1927	526	36719	2005	938	393	9.1%
1928	561	37668	2084	717	320	7.9%
1929	528	38491	1981	981	358	8.6%
1930	520	39449	2021	1051	289	8.5%

(c) **Percentage of Malaria Cases among Dispensary Patients.**

Year.	Total number of dispensary patients.	Number of patients treated for malaria.	Percentage of malaria patients.
1922	283,156	20,297	7.17
1923	270,945	13,280	4.90
1924	285,215	11,732	4.12
1925	344,150	7,835	2.27
1926	379,029	7,956	2.09
1927	394,932	9,069	2.29
1928	410,854	7,207	1.75
1929	404,188	11,404	2.82
1930	460,623	11,503	2.82

In order to continue the comparison of rainfall with malaria incidence, the following table which was given last year for the first time is included and brought up-to-date.

Year.	1924.	1925.	1926.	1927.	1928.	1929.	1930.
Rainfall in mm. during season ending April.	537	452	495	540	408	658	553
Percentage of malaria cases among dispensary patients.	4.12	2.27	2.09	2.29	1.75	2.82	2.82

The combined spleen rates of the town and village children of each medical district (vide map) for six years have been as follows:—

Medical District.	1925.	1926.	1927.	1928.	1929.	1930.
Jerusalem.	5.3	2.1	2.4	1.3	1.0	0.6
Jaffa.	11.8	4.0	3.4	1.0	1.2	0.8
Haifa.	10.3	8.7	10.4	8.7	7.8	7.2
Samaria & Galilee.	13.1	17.2	14.5	15.0	19.8	15.1

Spleen rates are high in Safad District though there is a slight reduction over last year taking the district as a whole. The rainfall was in this area relatively high compared with the previous winter and much work was necessary in wadies.

In Acre District, some of the villages in the coastal plain were adversely affected by neglected irrigation in the gardens, and to some extent by a series of swamps formed by leakage from the Acre aqueduct.

The town of Acre again suffered from invasion of *Anopheles elutus* from the swamps of the Naamein river. The spleen rate of school children examined was 5.5% as compared with 7·5% in 1929.

The incidence of malaria is high in the Zeeb-Kabri area where the plentiful supply of water from the springs is inadequately made use of for irrigation.

A welcome reduction in malaria has to be recorded in Hedera. The scheme for pumping away the waters of the Birket Atta swamp which was completed and put into action in spring, very largely contributed to this satisfactory result· The Birket was rendered unsuitable for *A. elutus* breeding in May and was dry early in June. A comparison of primary malaria cases occurring in Hedera for the years 1929 and 1930 is as follows:—

Month.	1929.	1930.
June.	130	31
July.	392	49
August.	76	8
September.	13	1
	611	89

An interesting outbreak of malaria occurred among military forces billeted in Beit Wegan, south of Jaffa town. The billets are on the sea coast with sand dunes stretching for some miles inland behind them. The site was not considered to be malarious on account of the nature of the terrain. On the occurrence of cases of malaria in the detachment and catching of *Anopheles elutus*, a careful survey was made of the surrounding area.

The cisterns and wells in the vicinity of the Army Post and in Jerish quarter were not responsible, so the survey was extended further afield. The villages of Gabalieh and Tel-Arish were found also to be affected. Adult mosquitoes were caught, cases of malaria were being reported and spleen rate was about 30%. No breeding was discovered in the villages or neighbouring orange groves. The survey was meanwhile being extended to the sand dune area. The source of breeding was found in a depression known as the Wady Nada where there were small outcrops of water at the foot of some sand dunes. Here, passers-by had dug shallow water holes for themselves and their animals in which very plentiful breeding of *Anopheles elutus* was occurring. By dealing with the breeding area and instituting regular inspection during the summer to ensure that no more breeding places were being created, by treatment of the infected villagers and routine destruction of adult mosquitoes in the Army Camp, the incidence of fresh infections was stopped.

The advance party of an archaeological expedition which established camp near Tel-el-Ajjul, south of Gaza and on the banks of the Wady Gaza, suffered to some degree from malaria before the onset of the cold weather. The incidence was controlled by treatment with quinine, and arrangements were made for a scheme of control to be carried out in the wady in the following spring.

Serious consideration had to be given to the situation being created in the Jordan valley by the hydro-electric works of the Palestine Electric Corporation. The damming of the River Jordan had caused flooding for some three kilometres of the river entailing a considerable amount of additional cleaning and control of breeding by chemical means.

The Yarmuk basin in which water is to be impounded will, when filled, constitute a lake many acres in extent a large part of which will consist of shallows. The growth of aquatic vegetation which must be expected to take place very rapidly all over this shallow area is likely to provide ideal conditions for anopheles breeding which would constitute a very serious danger to the Trans-Jordan Frontier Force Camp adjacent to the basin, to the staff of the Electric Corporation and to neighbouring villages and settlements. The company has been requested to carry out all measures of control necessitated by the new conditions which are being created by the works.

(d) **Antimalaria Measures.**

The general scheme of supplementing routine antimalarial work by special measures which was instituted to meet the situation arising after the particularly wet season of 1929 was again put into effect in 1930, as the conditions were to a large extent similar. Additional foremen were employed during the summer months to supervise the cleaning and Paris-greening of drainage channels cut during the previous year by labour provided by the villagers and land owners. In addition, several schemes were carried to a further stage of completion.

On account of the work done last year, the total amount of labour contributed was less. In total 6211 labourers gave 82,232 days work free of cost to Government. This assistance was obtained with little difficulty apart from the local negotiations required.

The routine anti-larval measures in towns and villages were maintained and where localised outbreaks occurred, free treatment with quinine was given.

Routine measures in villages and districts involved the oiling of 247,000 potential breeding places, the rendering of 14,000 breeding places mosquito proof and the treatment of 4000 persons with quinine. 29,633 kilos of solar oil were used and 267 kilos of Paris Green. In towns, 716,000 breeding places were oiled, 14,000 were rendered mosquito-proof, 54,652 kilos of solar oil were used.

166 kilogrammes of salts of quinine were used by the Department during the year on the free treatment of malaria cases.

The use of a pyrethreum paraffin preparation was resorted to on one occasion for the destruction of adult mosquitoes on a large scale. The annual Nebi Rubin festival was again held after a lapse last year on account of the disturbances. Some 40,000 people gather together for the period of one month on the banks of the River Rubin and adjacent to the extensive marshes of the same name. There is prolific breeding of *Anopheles elutus* in the river and in certain parts of the marsh and the area is exceedingly malarious. A large part of the marsh has been dealt with by a drainage scheme but it has been impossible so far to get funds to put the area in general and the river in particular under control early in the year, so that adult mosquito destruction was resorted to in the tents and huts erected by the people. Forty gallons of the insecticide were prepared by the laboratory section, while the mosquito destruction was undertaken by a sanitary gang provided by the Supreme Moslem Council for the ordinary scavenging services of the camping area.

Mosquito destruction was carried out during the period of the festival, and though it was not to be expected that all infections could be prevented by such a measure — in fact many cases were subsequently notified as attributable to the festival—yet there was in no sense a repetition of the 100% infection of families after the festival which had come to notice in previous years. The cost of insecticide used was approximately £P. 11.

(e) **Drainage and Reclamation Schemes.**

No large schemes were carried out by Government, but several minor ones were undertaken or carried to completion under Government supervision.

The lowering of a part of the main concrete channel of the Kishon was completed and a subsidiary channel was constructed. A section of the sub-surface drains was also lifted, cleaned and relaid.

A survey of the Kabri Spring area was completed in conjunction with the Irrigation Officer of the Agriculture Department. It is considered that the incidence of malaria will be reduced if the system of irrigation from the large springs in this area can be properly organised and controlled. The matter is one, however, which is most complicated owing to a system of shares and ownership in the water rights which has grown up during many generations. Arrangements were made to obtain a grant from the Government in 1931 to enable the Acre Municipality to put in repair the aqueduct and so dispose of the numerous marshy areas caused by leakages which require temporary chemical control to protect neighbouring villages.

In Safad District, a new canal was cut by local labour in the Hindaj wady which will permit the use of the water for irrigation and so dry up several kilometres of wady where anopheles breeding is always prolific. In Beisan, the course of the Wady-el-Toum and of the lower part of the Malha wady was straightened out and cleared over a total distance of 3 kilometres. These wadies are adjacent to the town, and are responsible for the remaining malaria in the town.

The arrangements for pumping dry the Birket Atta near Hedera were completed early in the year.

The scheme for the drainage of Rizikat and Hunein wadies in Jaffa District, prepared by the Assistant Sanitary Engineer, was carried into effect. Some 3440 metres of channel were cut and a marsh area of about 1000 dunums dried up. This work was carried out by contributions subscribed by the Jewish National Fund and local land owners.

The scheme for the drainage of the Rubin marshes was carried a further stage towards completion. 2213 metres of main and subsidiary channels were cut, and in addition cleaning and repairing of 5750 metres of existing channels was carried out. 875 metres of subsidiary channels remain to be cut in 1931 to complete the scheme. The effect of this work was seen during the early heavy rains which ran off rapidly without flooding the areas of the marsh already dried. The work was carried out by the Asst. Sanitary Engineer. The maintenance of the drainage channels in this scheme is of the utmost importance, as without this, most of the reclaimed land will return to its original marshy state. By placing the lease of reclaimed land on a proper basis, the Supreme Moslem Council should have no difficulty in securing proper maintenance of the channels by the tenants.

In Jaffa area, a land drainage scheme near Mikveh Israel was carried out under the supervision of the Sanitary Engineer of the Department. In another area North of the town, 2 kilometres of new ditching was dug to connect the Bassa Zeitoun to the drainage scheme of the Jamassin wady. This drainage had the effect of reducing the Bassa to a controllable condition early in the summer.

The extensive work of the Haifa Bay Development Company in the neighbourhood of Dar el Beida was continued during the year. A new bed for the Fuara wady was completed and stood the winter floods satisfactorily. The large swamp of Dar el Beida itself was drained by open concrete channels. Wady Mir was filled and the swampy ground round Tel-Sebta canalised.

A portion of "Soskin" canal was regraded and laid in cement. Further work in this area is to be continued in 1931.

The Palestine Jewish Colonization Association carried on drainage operations on the Kabbara swamps being particularly engaged in the deepening of the Zerka bed in order to effect drainage of the Birket Timsah. A drainage scheme was completed in the Wady Midi near Mas-ha in connection with a water supply scheme for the settlement of the same name which improved conditions in this mosquito-breeding area. Drainage work was continued in the Cherkas area and the Birket Batikh.

The Jewish National Fund carried out improvements on the drainage of the swampy area immediately adjoining Harbaj settlement. Additional subsoil drainage was laid and a covered concrete channel constructed to carry off the waters to the Kishon.

(f) **Units attached to the Department of Health.**

Arrangements were made for the temporary absorption of the remaining personnel of the Malaria Research Unit, previously maintained by funds supplied by the Jewish Joint Distribution Committee of America, into the normal staff of the Department. The staff had previously been reduced to 4 inspectors and the Controller, and it is hoped to be able to retain the services of these trained workers for the Department. The Malaria Research Unit has expended, under the control of the Department, some £P. 40,000 in reducing malaria conditions in areas undergoing Jewish settlement. The work has been of great value not only to the Jewish population but to the Government.

For the future, it now remains for the settlements benefitted by the works carried out to supply funds and labour for their proper maintenance, and the routine antilarval measures required each year.

ANTIMALARIA STATISTICS FOR THE YEAR 1930.

Towns of Palestine.

Month.	No. of fresh possible breeding places discovered.				No. of Places.							No. of prosecutions.	No. of kilos of Solar Oil used.
						Breeding.							
	Wells.	Cisterns.	Other Places.	Cesspits.	Inspected.	Anopheles.	Culex.	Anopheles and Culex.	Oiled.	Made mosquito-proof by sealing, covering or other means.	To which pumps fitted.		
January.	24	74	392	393	146035	7	449	—	54530	982	38	23	3284
February.	2	20	131	104	147652	15	457	—	54543	850	22	5	4025
March.	6	20	198	147	155554	13	755	3	58196	739	19	18	4464
April.	7	9	179	212	158130	9	984	6	59657	424	22	17	4356
May.	4	6	78	83	171116	15	1580	4	64500	339	12	18	4945
June.	50	3	334	306	168890	16	1759	—	62108	1443	24	16	5229
July.	7	7	273	136	178910	35	1997	—	62428	653	14	18	5233
August.	49	29	358	351	182901	20	2097	—	64297	628	48	16	4915
September.	24	6	205	430	179170	27	1996	9	64389	847	27	19	4982
October.	56	16	292	323	175232	14	1805	8	63209	648	80	9	4797
November.	8	113	821	1089	168629	20	1439	3	53005	4516	229	23	4374
December.	91	53	743	1064	179943	16	895	6	55301	1360	51	19	4048
TOTAL.	328	356	4004	4638	2012162	207	16213	39	716163	13429	586	201	54652

ANTIMALARIA STATISTICS FOR THE YEAR 1930.

Villages of Palestine.

Month.	No. of visits to Villages.	No. of new wells and cisterns found.	No. of other new possible breeding places found.	No. of places in which mosquito larvae found.	No. of places oiled.	No. of places closed, repaired and made mosquito proof.	No. of persons treated with quinine.	No. of prosecutions.	No. of kilos of Solar Oil used.	No. of kilos of crude Oil used.	No. of kilos of Paris Green used.	Grammes of quinine expended.
January.	1249	47	14	1009	20611	103	299	28	2017	—	1.0	1216
February.	1256	56	10	1037	20004	279	158	63	2178	—	.5	740
March.	1186	32	168	1183	19204	9123	110	57	2450	—	2.0	572
April.	1187	138	176	966	21587	2210	163	107	2527	—	2.0	678
May.	1286	55	97	865	21400	413	456	83	2798	—	—	818
June.	1341	183	114	711	22742	381	639	112	3133	—	4.0	2622
July.	1324	43	51	644	21977	156	445	165	2898	—	1.0	1776
August.	1388	28	62	552	20501	113	259	170	2579	—	3.0	1280
September.	1411	16	22	548	20705	140	438	12	2347	60	1.0	2168
October.	1277	43	7	587	18237	74	247	74	2117	—	175.5	1326
November.	1322	44	—	547	18495	35	412	2	2036	—	76.0	1760
December.	1326	29	379	1155	21647	1052	474	42	2558	—	1.0	2208
TOTAL.	15553	714	1100	9804	247110	14079	4100	915	29638	60	267.0	17164

8. Hydrophobia:

There were 4 deaths from this disease. The first case was that of a child of 6 years bitten on the naked arm by a cat. She was not brought for treatment and developed symptoms of hydrophobia 44 days later.

The second was also a child of 4 years bitten on the head by a jackal. Treatment commenced on the following day and the full course of treatment was given. Five weeks later, symptoms developed.

The remaining two cases were adults who were bitten on the nose by jackals. Treatment was in each case commenced the day after the patient was bitten and, despite a full course of the same, symptoms developed on the 26th and 29th days respectively.

ANIMALS DESTROYED IN ANTIRABIC CAMPAIGN, 1930.

	Number of animals killed in Antirabic Measures during 1930.				
	Dept of Health.	Dept. of Agriculture.	Dept. of Police and Prisons.	Municipalities.	Other Sources.
Jerusalem.	—	453	—	1653	—
Ramallah.	1	372	—	—	—
Bethlehem.	22	80	30	24	—
Hebron.	—	689	88	—	—
Beersheba.	—	1	95	—	1
Jaffa.	—	105	—	1264	—
Tel-Aviv.	—	—	—	2851	—
Ramleh.	—	359	—	140	—
Gaza.	—	293	—	—	—
Majdal.	—	89	372	—	—
Haifa.	—	—	59	519	—
Acre.	—	91	—	—	—
Nazareth.	—	—	43	307	—
Nablus.	—	251	1531	45	—
Tulkarem.	—	721	—	—	—
Tiberias.	—	282	—	114	—
Safad.	128	600	45	—	—
Beisan.	51	27	1	—	—
Jenin.	—	462	—	—	—
TOTALS.	202	4875	2264	6917	1

III. MEDICAL SECTION.

1. Government and Municipal Hospitals.

The outpatient department and pharmacy at Jerusalem hospital were transferred to outbuildings during the year. This improvement has removed a great deal of noise and congestion from the entrance of the main hospital building and has enabled additional ward accommodation to be arranged in the female section of the hospital. The consulting room of the Specialist Surgeon was also transferred from the maternity section to the main building. This arrangement is a greater convenience for patients and for the Specialist Surgeon and permits improved accommodation for pupil midwives in the maternity section of the hospital.

The Loesch X-Ray was connected to the town electric supply. The work of the X-Ray Department has increased considerably. 1045 patients were examined involving 2521 radiographs compared with 646 patients and 1119 radiographs in 1929.

Of 1709 patients admitted to hospital 976 were treated in the general wards, 292 in the infectious diseases section, 402 in the Princess Mary Maternity Wards, and 39 in the British Section ; 185 of the cases admitted were medico-legal patients.

In the Government Hospital, Haifa, in addition to the completion of the improvements mentioned last year, the operating theatre was renovated, hot water laid on, and very necessary improvements to the bathrooms and sanitary block effected. The high incidence of typhoid fever taxed the accommodation of the hospital severely in June and July, so much so that some of the very limited accommodation for general cases had to be given up temporarily for cases of enteric. The question of hospital accommodation in Haifa is becoming very acute owing to the rapid growth of the town and rural population.

In Jaffa Municipal Hospital, the roofs of four wards were entirely renewed and a garage for the ambulance constructed.

The construction of the nurses home for Gaza Municipal Hospital was completed at the end of the year.

The committee of the Municipal Hospital, Beersheba, carried out some minor improvements including completion of fencing of the site, and funds have been obtained for expenditure in 1931 on construction of nurses quarters, installation of water supply, and improved sanitation.

The increase in numbers of the British police section has necessitated accommodation being reserved for them in Jerusalem, Haifa, Jaffa, and Gaza, where the main detachments are stationed.

The total bedstrength of Government and Municipal hospitals is 372 of which a minimum of 94 beds are normally reserved for infectious diseases. This has the effect of reducing the daily average number of beds occupied which for the year was 213.

The following are the numbers of patients admitted to these hospitals during the last six years: —

Year.	1925.	1926.	1927.	1928.	1929.	1930.
Patients.	3939.	4286.	5048.	5075.	5519.	6301.

25 members of H.M. Forces, 94 Trans-Jordan Frontier Force, 312 British and 366 Palestine police, 213 Railway employees, 303 other Government employees and 384 prisoners received 17,207 days treatment in Government and Municipal hospitals. In addition 900 prisoners were treated in Sick Detention Wards of Central Prisons and 17 prisoners suffering from tuberculosis were admitted to the tuberculosis section of the Acre Central Prison. 134 patients were treated in Ramleh Casualty Post.

2. Medical care of the British Community by Specialist Surgeon.

(a) British Patients.

8351 visits were made on British and other foreign patients throughout the country, most of these being in Jerusalem: the increase of nearly 3300 is largely accounted for by the accession of British police.

November was the busiest month, but there has been no special increase in any month, due to any epidemic, apart from respiratory troubles, usually of a temporary nature. There was the usual seasonal incidence of affections of the air passages, and in the summer sandfly fever accounted for a number of admissions; appendicitis required operation on 21 cases—17 in Jerusalem—an increase on last year. There were 10 confinements.

(b) British Section, Government Hospital, Jerusalem.

196 cases were admitted, 39 of these to the Women's and Children's section. Of this total, only 5 were visitors to the country. The British police provided the greater number, accounting for over 120. The list on pages 41 and 42 gives some indication of the conditions met. There were 5 deaths among the British, all of whom being of an uncontrollable nature, one from pneumonia in a tourist who was admitted in extremis; one from angina pectoris in a few minutes after admission; one from fracture of the neck in a soldier; one from inanition in a child 3 lbs, 2 oz. on birth; one from inability to nourish in a child with severe hare-lip and cleft-palate.

(c) Surgery in Jerusalem Hospital.

688 operations were performed during the year, mutual assistance being given to the Medical Officers of the hospital and vice-versa; of these, 387 were of a minor nature. Appendicitis claimed 36, a definite increase on last year, and 17 of these were British. The type of appendix met in the Palestinian has become more severe recently, as gangrene and peritonitis are far more common, Neglect in earlier admission may account for this, though the obstructive form is certainly more frequent.

12 emergency laparotomies were done, and 5 for enterostomies of various natures. 24 hernias, 12 sequestra, 7 amputations and 6 stones (2 kidney), were dealt with. Operations for recurrent hernia, previously operated upon elsewhere, are not infrequently necessary, as also for police who have developed hernia since joining.

51 gynaecological and 39 obstetrical procedures were carried out and 2 Caesarean sections. The maternity section of the hospital is the means of giving much assistance to difficult cases and there is a large proportion of abnormal and difficult cases as well as the regular booked cases.

(d) District and other Hospitals.

133 visits were made to Government district hospitals and non-Government hospitals throughout Palestine as follows:

Haifa Government Hospital	18
Acre Municipal Hospital	3
Nablus Watan Hospital	6
Jaffa Municipal Hospital	7
Ramleh Casualty Post	1
Bethlehem Mental Hospital	4
St. Luke's Hospital, Hebron	6
Palestine General Hospital, Sarafand	13
Other non-Government Hospitals in Jerusalem and districts	75

Visits to Haifa for serious cases were mainly in the first half of the year, particularly for Lt.Col. Hawkes, who died at the end of June. Since that time, the arrival of the S.M.O. Railways, who is looking after the British community in Haifa, has made a difference in the number of visits required.

(e) Hospital Amenities.

Gradual improvements in all hospitals are noted both in equipment and staff, though the demands for admission are usually in excess of the capacity of the hospital. In Jerusalem, the second theatre has made operative and special examinations much easier and allows of separation of cases of a septic nature, etc.

A portable X-Ray set (Metalix) has been of distinct service not only in the hospital on fracture cases for observation of progress without the necessity of moving to the larger plant, but also in the districts where electricity is available as in Haifa and Jaffa.

There appeared to be a definite increase in the number of accident cases over the whole country and these are mostly admitted to the Government hospitals; this is particularly so in Jerusalem and with the greater number of cases referred from districts for X-Ray and opinion, the work of the Radiologist has increased too much in comparison with and in addition to his other duties as Medical Officer in charge of the hospital.

The timely and willing assistance of the Honorary Consultants, Dr. Orr 'Ewing and Dr. Strathearn, in medicine and ophthalmology respectively, was of great value to the Department and to the official or other patients concerned.

(f) Diseases of British Patients admitted to Hospital.

	Residents.		Visitors.	
	Cases	Deaths	Cases	Deaths
General Diseases.				
Influenza	1	—	—	—
Dysentery	1	—	1	—
Malaria (B.T.2; M.T.1.)	3	—	—	—
Rheumatism	1	—	—	—
Sandfly Fever	15	—	1	—
Neuralgia	1	—	—	—
Respiratory System and Heart.				
Pharyngitis and Tonsillitis	15	—	—	—
Bronchitis	3	—	—	—
Pneumonia	1	—	2	1
Pleurisy	1	—	—	—
Tachycardia	1	—	—	—
Dilated Heart	1	—	—	—
Angina Pectoris	1	1	—	—
Epistaxis	1	—	—	—
Tuberculosis Lungs	1	—	—	—
Alimentary System.				
Gastritis	6	—	—	—
Duodenal Ulcer	1	—	—	—
Periduodenitis	1	—	—	—
Appendicitis	17	—	—	—
Diarrhoea	1	—	1	—
Haemorrhoids	1	—	—	—
Jaundice	1	—	—	—
Liver Abscess	1	—	—	—
Female Reproductive System.				
Confinements	10	2 (children)	—	—
Observation	2	—	—	—
	88	3	5	1

(*Table continued on next page*)

Diseases of British Patients admitted to Hospital (*Continued*)

	Residents.		Visitors.	
	Cases	Deaths	Cases	Deaths
	88	3	5	1
Bones and Joints.				
Sprains	10	—	—	—
Fractures	3	1	—	—
Synovitis	1	—	—	—
Dislocations	3	—	—	—
Infectious Diseases.				
Chicken Pox	1	—	—	—
Measles	1	—	—	—
Erysipelas	1	—	—	—
Syphilis	1	—	—	—
Syphilis and Gonorrhoea	6	—	—	—
Gonorrhoea	8	—	—	—
Various.				
A.T.S. Reactions	4	—	—	—
Otitis	7	—	—	—
Abscesses	4	—	—	—
Stone in Kidney	1	—	—	—
Concussion	1	—	—	—
Wounds	1	—	—	—
Frontal Sinusitis	1	—	—	—
Minor Conditions.	49	—	—	—
	191	4	5	1

3. Government Dispensaries.

There are 15 Government dispensaries and 5 medical inspection rooms. The number of the latter was increased by the opening of a medical inspection room for railway employees in Haifa.

94,925 new cases attended for treatment compared with 81,960 in 1929. The dispensary attendances during the past six years were.

Year.	1925	1926	1927	1928	1929	1930
Attendances.	219,825	135,737	146,140	149,421	170,278	217,341

In areas where other facilities exist for medical attention, treatment at Government dispensaries is restricted as far as possible to poor and Government employees. In keeping with this policy, the establishment of a second private practitioner in Gaza town made it possible to restrict the work in so far as the general public were concerned, and to develop a clinic for children of pre-school age, to bridge the gap between the infant welfare clinic and the school medical service.

The principal increase in attendances was recorded at Beersheba and Beisan. At Beersheba the attendances increased from 7827 in 1929 to 13038, largely due to the extension of work amongst Bedouin tribes by the Medical Officer.

At Beisan, the increase from 10255 to 18267 was largely due to the greater number of eye conditions treated.

4. Voluntary Hospitals and Clinics.

There are 29 voluntary hospitals with a total accommodation for 1747 patients. The daily average number of beds occupied during the year was 1233. The total number of admissions continues to increase and was 31359 compared with 29942 in 1929. Of 28855 admissions classified by religions 19035 were Jews, 6496 Moslems, and 3324 Christians and others.

Dispensary attendances are higher than previously recorded in any year, numbering 1,152,367 compared with 1,032,882 in 1929.

In addition, a considerable amount of medical attention is given at village clinics by voluntary organizations. While the number of clinics was decreased by three as compared with last year, the total attendances increased from 456,626 in 1929 to 510,500 in 1930.

The following table indicates the work done by these clinics: —

	Number of Clinics.	Total Attendances.	New Patients.			
			Malaria.	Eye Diseases.	Other Diseases.	Total.
Hadassah Medical Organization.	26	178984	1643	4088	24656	30387
Kupat Cholim.	48	267685	1886	4842	86477	93205
Jointly Hadassah and Kupat Cholim.	2	10921	97	501	3832	4430
Colony Committees.	11	46537	486	2737	11012	14235
Church Missionary Society.	2	6373	334	345	2615	3294
TOTALS.	89	510500	4446	12513	128592	145551

Of 500340 new patients at dispensaries and clinics classified by religions, 377694 were Jews, 88695 Moslems and 33951 Christians and other religions.

The Jerusalem and the East Mission permanently opened their hospital of 32 beds in Hebron for admission of patients on the 17th March, 1930. As there are no hospital facilities in this area which has a population of 62,000 inhabitants, this hospital has scope for very useful service.

The Kupat Cholim or Sick Fund of the General Federation of Jewish Labour in Palestine opened the hospital which they are in process of constructing near 'Affula and transferred their activities from the temporary wooden buildings occupied at Ain Harod. The new premises at present have accommodation for 64 patients but when the complete programme of building has been completed the total accommodation will be 80 beds. The hospital assisted in the hospitalization of typhoid cases during an outbreak which occurred in the summer in Jewish settlements.

The "Arza" convalescent sanatorium of this organization at Motza was enlarged by the completion of a second storey and by the addition of separate quarters for personnel. A convalescent home was also open during the summer months at Mount Carmel.

The "Arza" home with accommodation for 60 patients, admitted 917 convalescents whose duration of stay in the home averaged 22 days. The institution at Mount Carmel admitted 290 persons for an average of 15 days each.

The Hadassah Medical Organization opened the Peter Schweitzer Hospital of 38 beds in Tiberias in June. The number of in-patients treated at its hospitals situated in Jerusalem, Haifa, Tel-Aviv, Safad and Tiberias was 10,845 compared with 10,783 in 1929. Outpatients treated were 91,737 compared with 87,495 in 1929.

The Organization reports that "the principal problem which is engaging attention at present is the question of transferring the responsibilities of health work to the community. The community best able to assume responsibility for its medical and health services is undoubtedly the Jewish population of Tel-Aviv".

Accordingly, negotiations have been proceeding during the year for the transfer of the Tel-Aviv hospital to the Municipality. The question is mainly a financial one and the Government and the Municipality are principally interested in ensuring that the Municipality does not become committed either immediately or in the future to expenditure on the present system of hospital administration by Hadassah which is more elaborate and expensive than the rate-payers can afford to maintain.

Proposals have also been made for reducing the hospital facilities provided by the Hadassah Medical Organization for the Jewish community in Haifa, Safad and Tiberias. The present intention is to restrict hospital work in Haifa to maternity and children's diseases, and in Safad to the treatment of cases of tuberculosis, while the Schweitzer hospital in Tiberias will be closed down. The expenditure of the organization on all its activities was £P.109,669 compared with £P. 106,497 in 1929.

As in past years, assistance was given by the Shaare Zedek Hospital, Jerusalem, in the hospitalization of infectious patients on account of lack of adequate accommodation in the Government hospital. Altogether 135 patients suffering from various acute fevers were treated.

5. Training of Nurses.

The examinations of nurses undergoing training at recognised training schools were held in April and October. The following were the numbers of successful candidates:

	1st Year.	2nd Year.	3rd Year.
Government and Municipal Hospitals.	7	13	8
Hadassah Rothschild Hospital	10	12	20
Church Missionary Society Hospitals	2	3	4
English Mission Hospital, Jerusalem	3	1	3
Edinburgh Medical Mission Hpl., Nazareth.	—	2	—
	22	31	35

It is satisfactory to record that the number of nurses registered as undergoing training is increasing, being 135 compared with 117 in 1929. The work which is being carried out in this direction is of extreme value to the country as even although a private nurse may not continue actively in the profession for many years after graduation, the knowledge and training in matters pertaining to health and hygiene which she has gained, inevitably helps to raise the general standard of such knowledge in the community.

The thanks of the Department are due to all doctors and matrons of hospitals who so freely give their services on the examining boards.

Since 1920, 265 nurses have completed training as graduate nurses in Palestine.

5 graduate nurses completed training in midwifery and child welfare at the Government training school in Jerusalem. One nurse employed by the Government was given a course of instruction in ophthalmic work at the Ophthalmic Hospital of the Order of St. John. 2 opthalmic nurses and 3 school nurses received "refresher" courses at the same hospital.

HOSPITAL NURSING STAFFS 1930.

NAME OF ORGANIZATION.	Bed Strength.	Matrons.	Staff Nurses.	Nurses Under Training			Not under Training.	TOTALS.
				1st year	2nd year	3rd year		
GOVERNMENT & MUNICIPAL HOSPITALS.	449	9	22	18	7	12	21	89
(including Bethlehem Mental Hospital and Ramleh Casualty Post).								
VOLUNTARY HOSPITAL ORGANIZATIONS.								
(including Ezrath Nashim Asylum).								
Hadassah Medical Organization.	396	5	85	11	11	12	22	146
Church Missionary Society.	162	3	10	11	1	3	6	34
Kupat Cholim (Sick Fund General Federation of Jewish Labour).	124	1	11	—	1	—	9	22
Tutors & Protectors of the Jewish Community in the Holy Land, Amsterdam.	53	1	3	10	—	—	6	20
Misgab Ladach (Private Donations).	35	1	—	2	1	1	—	5
Bicur Cholim Society.	94	3	3	—	—	—	32	38
Italian Hospital, Jerusalem.	60	1	—	—	—	—	13	14
Church Mission to Jews.	70	1	4	3	3	1	—	12
The Order of St. John of Jerusalem in England.	45	3	—	—	—	—	4	7
International Moravian Church, London.	60	1	3	—	—	—	—	4
German Deaconness Hospital, Jerusalem.	60	1	7	1	1	—	9	19
German Temple Society, Jaffa.	20	1	1	—	1	—	—	3
Jerusalem & the East Mission.	32	1	4	—	—	—	2	7
Italian Association, Haifa.	30	1	5	—	—	—	—	6
St. Charles Congregation, Haifa.	30	1	3	1	1	—	—	6
Edinburgh Medical Mission Society.	50	1	—	2	—	4	4	11
United Free Church of Scotland.	60	1	3	6	1	—	—	11
Ezrath Nashim Women's Society Home for Insane and Incurable.	50	1	2	—	—	—	15	18
French Hospitals.	366	4	29	6	2	1	29	71
TOTALS.	1797	32	173	53	23	22	151	454

GOVERNMENT AND MUNICIPAL HOSPITALS - 1930.

General and Infectious.

Location of Hospital.	Bed Strength.				Admissions.					Deaths.	Discharges.	Daily average in Hospital.	Remarks.
	General.	Isolation	British.	Maternity	Moslems.	Christians.	Jews.	Other Religions.	Total.				
Jerusalem Government Hospital	70	11	6	16	992	634	83	—	1709	70	1610	60.6	—
Haifa " "	23	40	7	—	585	253	311	9	1158	42	1102	38.0	—
Acre Municipal "	24	5	—	—	334	100	16	21	471	27	438	15.5	—
Jaffa " "	41	25	7	—	855	216	98	—	1169	69	1090	33.9	—
Gaza " "	20	9	2	2	579	18	—	—	597	25	560	15.9	—
Beersheba " "	8	—	—	—	300	6	2	—	308	8	290	7.6	—
Nablus " "	48	4	—	4	832	56	1	—	889	59	829	41.0	—
TOTALS.	234	94	22	22	4477	1283	511	30	6301	300	5919	212.5	

PRISON SICK DETENTION WARDS.

Jerusalem	14	198	17	35	1	251	—	251	5.0	—
Acre, General Ward	20	602	21	23	3	649	—	656	16.3	—
Acre, Tuberculosis Ward	20	13	4	—	—	17	1	15	16.6	—
Acre, Criminal Lunatics Ward	14	8	1	1	—	10	—	—	8.7	Opened in August.
TOTALS.	68	821	43	59	4	927	1	922	46.6	

GOVERNMENT DISPENSARIES AND CLINICS EXCLUSIVE OF OPHTHALMIC CLINICS AND OTHER SPECIAL CLINICS - 1930.

Location.	Total Number of Attendances.	New Cases.							
		Total New Cases.	By Diseases.			By Religions.			
			Malaria.	Eye Diseases.	Other Diseases.	Moslems.	Christians.	Jews.	Other Religions.
Jerusalem Dispensary.	15666	9484	5	94	9385	5159	2874	1451	—
Ramallah "	610	466	20	9	437	297	169	—	—
Hebron "	3278	2109	11	173	1925	2020	89	—	—
Beersheba "	13038	4366	92	—	4274	4247	105	14	—
Jaffa "	20859	11256	829	1078	9349	10629	402	225	—
Ramleh "	26911	7872	392	—	7480	6667	1169	36	—
Gaza "	4512	3980	—	—	3980	3885	95	—	—
Majdal "	18043	4945	4	899	4042	4790	155	—	—
Haifa "	8834	5640	170	244	5226	3075	1922	639	4
Acre "	5899	4161	657	36	3468	2951	970	111	129
Nablus "	27401	4601	—	—	4601	4468	92	—	41
Tulkarem "	11772	3581	321	—	3260	3509	65	7	—
Jenin "	7635	5949	292	648	5009	5858	91	—	—
Beisan "	18267	15754	486	6187	9081	14418	1069	267	—
Safad "	24897	4994	217	579	4198	4691	280	23	—
Kantara Railway Med. Insp. Room	1952	1038	14	101	923	642	391	4	1
Nazareth Medical Inspection Room	1387	1012	16	8	988	698	296	18	—
Tiberias " "	1863	890	12	171	707	522	150	218	—
Bethlehem " "	365	200	—	8	192	110	84	6	—
Haifa Railway Med. Insp. Room	4152	2627	105	173	2349	1436	835	355	1
TOTALS.	217341	94925	3643	10408	80874	80072	11303	3374	176

VOLUNTARY HOSPITALS - 1930.

Name and Location of Hospital.	Bed Strength.	Admissions.					Deaths.	Discharges.	Daily Average in Hospital.	Remarks.
		Moslems.	Christians.	Jews.	Other Religions.	Totals.				
JERUSALEM.										
Ophthalmic Hospital of the Order of St. John of Jerusalem	45	865	110	15	—	990	1	1015	33.0	
St. Louis (French) Hospital	150	461	566	2	—	1029	44	993	35.6	
Italian Hospital	60	316	151	8	—	475	21	462	16.0	
Rothschild (Hadassah) Hospital	125	3	4	3328	—	3335	198	3153	123.6	
English Mission Hospital (Church Mission to Jews)	70	13	64	1247	—	1324	14	1300	52.0	Closed 7-29.4.30 „ 26.9-21.10.30
Shaare Zedek Hospital	53	12	4	1163	—	1179	87	1119	38.0	
Mizgab Ladach Hospital	35	—	—	831	—	831	22	799	23.6	
New Bicur Cholim Hospital	74	1	2	1809	—	1812	79	1728	72.0	
Old Bicur Cholim Hospital	20	—	—	32	—	32	21	9	19.5	
Leper Hospital (International Moravian Society)	60	2	—	—	—	2	1	7	18.7	
Deaconness (German) Hospital	60	623	696	26	—	1345	48	1271	49.0	
Convalescent Home (Kupat Cholim) Motza	60	—	—	946	—	946	—	1003	58.2	Closed 9-21.4.30
BETHLEHEM.										
French Hospital	70	261	540	—	—	801	21	782	25.6	
HEBRON.										
Jerusalem and the East Mission Hospital	32	482	7	—	—	489	12	463	13.6	Opened 17.3.30
JAFFA.										
Hadassah (Tel-Aviv) Hospital	125	3	—	4535	—	4538	210	4296	130.1	
Church Missionary Society Hospital	54	—	—	—	—	1059	43	1020	25.9	
German Hospital	20	35	117	4	—	156	8	151	5.0	
French Hospital	90	897	148	41	—	1086	47	1035	32.7	
GAZA.										
Church Missionary Society Hospital	63	—	—	—	—	563	25	541	22.9	

VOLUNTARY HOSPITALS - 1930 *(Continued)*.

Name and Location of Hospital.	Bed Strength	Admissions.					Deaths.	Discharges.	Daily Average in Hospital.	Remarks.
		Moslems.	Christians.	Jews.	Other Religions.	Totals.				
HAIFA.										
Hadassah Hospital	55	3	3	2050	—	2056	58	1984	51.5	
German Hospital	30	277	238	393	5	913	26	881	25.6	
Italian Surgical Hospital.	30	162	56	89	4	311	7	320	15.6	
NAZARETH.										
Edinburgh Medical Mission Hospital	50	1008	219	3	2	1232	63	1161	36.8	
French Hospital (Soeurs de Charité)	56	312	251	1	—	564	25	545	17.3	
NABLUS.										
Church Missionary Society Hospital	45	717	112	—	—	829	31	802	21.7	
TIBERIAS.										
Scottish Mission Hospital	60	—	—	—	—	882	38	862	51.1	Closed from 1.7.30 to 31.10.30.
Hadassah Hospital.	38	8	1	299	—	308	12	276	18.5	Opened June 1930.
SAFAD.										
Hadassah Hospital	53	34	24	540	—	598	24	578	47.4	
AFFULA.										
Kupat Cholim	64	1	—	1673	—	1674	28	1637	52.3	
TOTALS.	1747	6496	3313	19035	11	31359	1214	30193	1132.8	

VOLUNTARY DISPENSARIES AND CLINICS - 1930.

Name of Dispensary or Clinic.	Total Attendances.	New Patients.								Remarks.
		Totals.	By Diseases.			By Religions.				
			Malaria.	Eye Disease.	Other Diseases.	Moslems.	Christians.	Jews.	Other Religions.	
JERUSALEM.										
Ophthalmic Hospital of the Order of St. John.	82388	19457	—	19457	—	13148	4797	1512	—	
St. Louis (French) Hospital	25227	11953	63	1812	10078	5916	5218	819	—	Closed 9-16 August.
Italian Hospital	5914	3167	—	—	3167	1865	939	363	—	
Rothschild (Hadassah) Hospital	103822	21119	21	3768	17330	145	282	20692	—	
Church Mission to Jews Hospital	35543	15154	1	3502	11651	467	908	13779	—	
Shaare Zedek Hospital	17538	3350	—	—	3350	125	21	3204	—	
Mizgab Ladach Hospital	20118	10146	—	706	9440	123	8	10015	—	
Old Bicur Cholim Hospital	2047	2047	—	—	2047	—	—	2047	—	
New Bicur Cholim Hospital	21295	6203	—	—	6203	—	—	6203	—	
German (Deaconness) Hospital	15641	9523	—	340	9183	4827	2704	1992	—	
Armenian Convent Dispensary	1399	474	1	15	458	1	473	—	—	
Kupat Cholim Dispensary	40643	16622	1	276	16345	3	—	16619	—	
Moslem Polyclinic	4902	3889	—	158	3731	3889	—	—	—	
RAMALLAH.										
Soeurs de St. Joseph (French) Dispensary	1410	1289	—	832	457	601	688	—	—	
BETHLEHEM.										
French Hospital	19191	4380	—	2750	1630	2513	1867	—	—	
HEBRON.										
Moslem Polyclinic	5239	3385	—	603	2782	3385	—	—	—	
St. Lukes (Jerusalem and the East) Dispensary	7783	2802	335	725	1742	2509	287	6	—	

VOLUNTARY DISPENSARIES AND CLINICS - 1930 *(Continued).*

Name of Dispensary or Clinic.	Total Attendances.	New Patients.								Remarks.
		Totals.	By Diseases.			By Religions.				
			Malaria.	Eye Disease.	Other Diseases.	Moslems.	Christians.	Jews.	Other Religions.	
JAFFA.										
Church Missionary Society Hospital	13916	7649	689	338	6622	—	—	—	—	
Hadassah Hospital	76304	16186	92	2695	13399	1	—	16185	—	
French Hospital	29642	2993	45	1248	1700	2993	—	—	—	
Kupat Cholim Dispensary	243626	59984	1010	7323	51651	167	—	59817	—	
St. George's Dispensary	4912	3470	163	72	3235	1626	1844	—	—	
Jewish Med. Organization, Neve Shalom	10647	1226	2	287	937	8	2	1216	—	
" " " Neve Zedek	28051	13408	4	1426	11978	—	—	13408	—	
Church of Scotland Dispensary	3359	2425	94	—	2331	1525	27	873	—	Closed 1-7-30 to 8-9-30.
General Clinic	12121	4015	45	744	3226	1112	33	2870	—	
GAZA.										
Church Missionary Society Hospital	6654	3909	254	164	3491	3650	257	1	1	
HAIFA.										
Hadassah Hospital	47675	9584	11	3435	6138	143	28	9413	—	
Italian Hospital	7267	3573	247	1	3325	1685	484	1350	54	
German Hospital	4373	3636	1 —	939	2697	1569	1611	436	20	
Soeurs de Charité (French) Dispensary	14413	4297	503	1105	1689	2704	1553	40	—	
Kupat Cholim Dispensary	82867	46486	48	2131	44307	4	81	46401	—	
British Mission to Jews Dispensary	10374	3467	61	181	3225	305	529	2632	1	
Moslem Medical Clinic	9356	6521	481	245	5795	6361	148	12	—	

VOLUNTARY DISPENSARIES AND CLINICS - 1930 *(Continued).*

Name of Dispensary or Clinic.	Total Attendances.	New Patients.								Remarks.
		Totals.	By Diseases.			By Religions.				
			Malaria.	Eye Disease.	Other Diseases.	Moslems.	Christians.	Jews.	Other Religions.	
NAZARETH.										
Edinburgh Medical Mission Hospital	9662	5713	697	949	4067	3752	1950	11	—	
French Hospital	11789	10407	970	2006	7431	6163	4244	—	—	
Bros. of St. John of God Dispensary	3466	3420	338	582	2500	1948	1472	—	—	
NABLUS.										
Church Missionary Society Hospital	8867	3466	180	660	2626	3466	—	—	—	
TIBERIAS.										
Scots Mission Hospital	16589	3260	246	339	2675	—	—	—	—	Closed July-Oct.
Hadassah Dispensary	61127	8977	218	4662	4097	907	99	7971	—	
SAFAD.										
Hadassah Hospital	25210	2666	40	134	2492	49	31	2586	—	
TOTALS.	1152367	365698	7860	66610	291228	79655	32585	242473	76	

TABLE OF PATIENTS IN GOVERNMENT, MUNICIPAL AND VOLUNTARY HOSPITALS - 1930.

Name of Hospital.	British.		Other Foreigners.			Palestinians.			Totals.		
	Jews.	Christians & others.	Jews.	Moslems.	Christians & others.	Jews.	Moslems.	Christians & others.	Jews.	Moslems.	Christians & others.
Mizgab Ladach, Jerusalem	—	—	228	—	—	603	—	—	831	—	—
St. Louis (French) Jerusalem	—	1	—	—	—	2	461	565	2	461	566
Ophthalmic, Order of St. John, Jerusalem	—	2	—	—	—	15	865	108	15	865	110
Rothschild (Hadassah), Jerusalem	9	—	1120	—	—	2199	3	4	3328	3	4
English Mission, Jerusalem	1	11	70	—	8	1176	13	45	1247	13	64
Ezrath Nashim, Jerusalem	—	—	—	—	—	32	—	—	32	—	—
Shaare Zedek, Jerusalem	16	—	281	—	1	866	12	3	1163	12	4
Bicur Cholim (New), Jerusalem	15	—	574	—	—	1220	1	2	1809	1	2
Bicur Cholim (Old), Jerusalem	—	—	19	—	—	13	—	—	32	—	—
Italian, Jerusalem	—	—	4	5	31	4	311	120	8	316	151
German (Deaconness), Jerusalem.	—	24	9	16	213	17	607	459	26	623	696
Convalescent Home, Motza	—	—	—	—	—	946	—	—	946	—	—
French, Bethlehem	—	—	—	—	25	—	261	515	—	261	540
St. Lukes, Hebron	—	6	—	—	—	—	482	1	—	482	7
Church Missionary Society, Jaffa	—	7	—	—	1	←	1051 x.	→	←	1051 x.	8 →
French, Jaffa	—	5	20	7	30	21	890	113	41	897	148
German, Jaffa	—	—	—	—	3	4	35	114	4	35	117
Hadassah, Tel-Aviv	1	—	3187	—	—	1347	3	—	4535	3	—
Church Missionary Society, Gaza	—	11	—	—	—	←	552 x.	→	←	552 x.	11 →
Italian, Haifa	—	4	—	—	9	89	136	46	89	163	59
German, Haifa	4	12	300	6	102	89	270	130	393	276	244
Hadassah, Haifa	17	—	943	—	—	1090	3	3	2050	3	3
Edinburgh Medical Mission Society, Nazareth	—	15	—	—	2	3	1008	204	3	1008	221
French, Nazareth	—	1	—	1	4	1	311	246	1	312	251
Kupat Cholim, Ain-Harod	3	—	458	—	—	1212	1	—	1673	1	1674
Hadassah, Safad	4	19	179	—	—	357	34	5	540	34	24
Church Missionary Society, Nablus	—	2	—	—	—	—	716	111	—	716	113
Scots Mission, Tiberias	—	9	—	39	10	267	459	98	267	498	117
Hadassah, Tiberias	1	—	67	1	—	231	7	1	299	8	1.
Total Voluntary Hospitals.	71	129	7459	75	439	11804	6916	2893	19334	6991	3461
						←	plus 1603 x.	→	←	plus 1603 x.	→
Government General, Jerusalem	1	158	2	34	38	78	958	401	81	992	597
Government British Section, Jerusalem	2	35	—	—	2	—	—	—	2	—	37
Municipal Beersheba		1				2	300	5	2	300	6

German (Deaconess), Jerusalem.	—	24	9	16	213	17	607	459	26	623	696
Convalescent Home, Motza	—	—	—	—	—	946	—	—	946	—	—
French, Bethlehem	—	—	—	—	25	—	261	515	—	261	540
St. Lukes, Hebron	—	6	—	—	—	—	482	1	—	482	7
Church Missionary Society, Jaffa	—	7	—	—	1	←	1051 x.	→	←	1051 x.	8 →
French, Jaffa	—	5	20	7	30	21	890	113	41	897	148
German, Jaffa	—	—	—	—	3	4	35	114	4	35	117
Hadassah, Tel-Aviv	1	—	3187	—	—	1347	3	—	4535	3	—
Church Missionary Society, Gaza	—	11	—	—	—	←	552 x.	→	←	552 x.	11 →
Italian, Haifa	—	4	—	—	9	89	136	46	89	163	59
German, Haifa	4	12	300	6	102	89	270	130	393	276	244
Hadassah, Haifa	17	—	943	—	—	1090	3	3	2050	3	3
Edinburgh Medical Mission Society, Nazareth	—	15	—	—	2	3	1008	204	3	1008	221
French, Nazareth	—	1	—	1	4	1	311	246	1	312	251
Kupat Cholim, Ain-Harod	3	—	458	—	—	1212	1	—	1673	1	1674
Hadassah, Safad	4	19	179	—	—	357	34	5	540	34	24
Church Missionary Society, Nablus	—	2	—	—	—	—	716	111	—	716	113
Scots Mission, Tiberias	—	9	—	39	10	267	459	98	267	498	117
Hadassah, Tiberias	1	—	67	1	—	231	7	1	299	8	1
Total Voluntary Hospitals.	71	129	7459	75	439	11804	6916	2893	19334	6991	3461
						←	plus 1603 x.	→	←	plus 1603 x.	→
Government General, Jerusalem	1	158	2	34	38	78	958	401	81	992	597
Government British Section, Jerusalem	2	35	—	—	2	—	—	—	2	—	37
Municipal, Beersheba	—	1	—	—	—	2	300	5	2	300	6
Municipal, Jaffa	—	112	21	18	6	77	837	98	98	855	216
Municipal, Gaza	—	6	—	6	—	—	573	12	—	579	18
Government, Haifa	—	86	97	24	20	214	561	156	311	585	262
Municipal, Acre	—	2	8	12	3	8	322	116	16	334	121
Municipal, Nablus	—	26	—	2	4	—	830	27	—	832	57
Government Mental, Bethlehem	—	—	5	—	4	2	4	5	7	4	9
Total Government and Municipal Hospitals	3	426	133	96	77	381	4385	820	517	4481	1323
TOTAL ALL HOSPITALS.	74	555	7592	171	516	2185	11301	3713	19851	11472	4784
						←	plus 1603 x.	→	←	plus 1603 x.	→

x. Total patients treated — classification by religions not available.

6. Maternity and Child Welfare.

The Princess Mary Maternity Wards of the Government Hospital, Jerusalem, dealt with 402 confinement cases during the year of which 40 were difficult cases. The number of live births compared with previous years is shown below :—

Year	1922	1923	1924	1925	1926	1927	1928	1929	1930
No. of births.	55	111	170	196	267	316	261	289	340

The maternal mortality amongst cases admitted for the year was 49 per 1000 live births. It was necessary owing to difficulties in obtaining contributions from the Supreme Moslem Council to end the arrangements whereby the Council supported four beds and paid for the training of Moslem pupil midwives. Moslem pupils are now required to pay their own fees on the same basis as other candidates for training, but the harem arrangements for the four beds and the pupil midwives have been maintained.

16 midwives were trained during the year and became certified midwives under the Midwives Ordinance 1929. The course of training is now six months and each pupil must attend at least 20 confinements. The course of instruction is coordinated with the work of the external maternity service which operates from premises in the Old City where an antenatal clinic and infant welfare centre are also conducted. The pupil midwives receive training also in those branches of work.

The midwives who graduated during the year attended an average of 27.2 cases each. The district service to which reference has been made has made considerable progress on satisfactory lines. During the year, 204 confinements were attended and 216 cases were under supervision at the ante-natal clinic. There were 417 infants cared for by the infant welfare centre. The attendances of infants at the clinic have greatly improved. These numbered 6649 while 3414 visits were made to infants' houses.

The number of Government infant welfare centres was increased by one by the opening of a centre in the old city quarter of Jaffa town. The Hadassah Medical Organization closed one centre in Jerusalem and opened centres in Safad and Nes-Tsiyona. The centre which operated in Hebron has not been re-opened. The number of centres maintained by local committees was decreased by the closure of one in the village of Sharafat. An order of religious sisters is organizing a welfare centre in the Manshiya quarter of Jaffa, and arrangements are being made for a privately maintained centre to be opened in Ein-Kārim.

Five graduate nurses commenced training in midwifery and infant welfare work, at the end of the year, and will be available in 1931 for the further development of this useful and valuable branch of departmental activities.

At the end of the year, there were 14 Government centres, 21 centres maintained by the Hadassah Medical Organization, and 6 by local committees. The number of infants cared for by the centres was 17,755 compared with 16,122 in 1929 and 14,456 in 1928.

The number of attendances of infants at the centres increased from 64,315 to 70,143.

The Hadassah centres cared for 8572 infants and in addition gave ante-natal advice and treatment to 3769 pregnant women and treated 1320 children of pre-school age.

The Nathan and Lina Straus Health Centre in Tel-Aviv was opened and the centre in Jerusalem is developing its activities on satisfactory lines.

The Haifa Infant Welfare and Social Service Association records further development of its useful work. A branch centre was opened in the Moslem Girls' School on Fridays and rapidly became very popular with Moslem mothers in this quarter of the town.

Attendances of infants at the centre increased by 84%. During the year two nurses were attached to the centre for training. At the end of the year arrangements were being made to find better accommodation for the centre.

The Jerusalem Local Committee assisted by the American Colony Aid Association, closed its centre in the village of Sharafat but effected a considerable increase in the work done at the centre in Jerusalem.

The Department has to record with regret the death during the year, after a short and painful illness, of District Nurse Lydia Eid who was in charge of the infant welfare centre in Gaza town. Under difficult conditions she had secured the confidence of the mothers and was responsible for the satisfactory development of the work in this town where infant mortality is very high. During the absence of this nurse on sick leave, Mrs. Hargreaves of the C.M.S. very kindly assisted in continuing the work of the centre.

The infant mortality for the country was 154.28 compared with 186.47 in 1929.

INFANT WELFARE - 1930.

Location and Supporting Organization.	No. of infants cared for by Centre.	Attendances of infants at the Centre.	Visits by nurses to infants at homes.	Opened in
Government & Municipal:				
Jerusalem, Government.	417	6649	3414	1925
Ramleh. "	1101	8058	1495	1926
Nablus "	916	4068	2925	1926
Acre "	363	1171	1671	1926
Gaza "	480	1486	1744	1927
Hebron "A" "	463	3796	2464	1927
Hebron "B" "	311	4420	2458	1928
Jifna "	210	5591	2324	1928
Halhul "	170	3668	1760	1929
Beisan "	80	233	240	July, 1930
Jaffa "	152	1452	656	Aug., 1930
Ramallah Municipal.	322	2756	3182	1925
Bethlehem "	211	4757	3188	1926
Beersheba "	70	178	782	1929
Totals.	5266	48283	28303	
Hadassah Medical Organization:				
Jerusalem, Station A.	617	5229	2255	1922
" " B.	1595	15844	4808	1924
" " C.	1389	13447	4077	1923
" " F.	312	2736	806	1925
" " G.	94	1243	437	1928
Tel-Aviv, " A.	814	9197	1896	1927
" " B.	317	4720	583	1927
Haifa, " A.	624	8742	371	1923
" " B.	779	7631	1513	1926
" " C.	114	1963	486	1926
" " D.	66	923	127	1927
Rehovot.	154	2337	337	1924
Shaaraim.	131	2125	1470	1926
Rishon-le-Tsiyon.	127	1392	464	1928
Shivat-Tsiyon.	72	809	341	1928
Petah Tiqva.	442	4710	1299	1924
Mahane Yehuda.	119	1436	645	1925
Tiberias.	611	7042	1766	1924
Yavneel.	64	1231	381	1928
Safad.	93	1211	439	1930
Nes-Tsiyona.	38	206	70	Sept. 1930
Totals.	8572	94174	24571	
Local Committees:				
Jerusalem American Colony Aid Association.	451	4309	1980	1927
Sharafat " " " "	378	700	—	Closed May 1930
Jaffa, Committee of Ladies.	309	9030	997	1926
Haifa, Social Service & Infant Welfare Assn.	685	5815	6922	1925
Women's International Zionist Organization:				
Tel-Aviv, Shabazi Street.	620	11124	2534	1926
" Carmel "	961	14285	3057	1923
" Nehemya "	513	11039	1779	1922
Totals.	3917	56302	17269	
GRAND TOTALS.	17755	198759	70143	

7. Ophthalmic Service.

The prevalence of acute ophthalmic conditions was higher than last year. The work of the six ophthalmic clinics at Ramleh, Gaza, Acre, Beersheba, Nablus and Tulkarem all show an increase. In several parts of the country the incidence of acute ophthalmia was epidemic in character.

The monthly incidence of patients suffering from acute conjunctivitis who attended the six ophthalmic clinics was as follows:—

Months.	Beersheba.	Gaza.	Ramleh.	Acre.	Nablus.	Tulkarem.	Totals.
January.	9	3	18	9	92	69	200
February.	3	7	—	8	32	31	81
March.	1	13	11	5	64	14	108
April.	12	26	39	7	83	64	231
May.	30	232	167	20	94	142	685
June.	53	93	145	9	207	122	629
July.	93	128	91	60	332	272	976
August.	100	298	155	90	414	347	1404
September.	108	600	211	139	252	411	1721
October.	84	302	174	85	164	265	1074
November.	26	92	106	35	130	177	566
December.	20	57	50	5	59	92	283
Totals.	539	1851	1167	472	1923	2006	7958

The work of these clinics for the past five years is indicated below:—

	Attendances.	New Patients.
1926	105,462	13,810
1927	108,437	15,928
1928	147,951	18,576
1929	146,135	14,271
1930	162,207	16,894

If means were available the number of these clinics could well be increased throughout the country as though ophthalmic treatment is given at other Government dispensaries, the staff of the Ophthalmic clinics have received special training at the hospital of the Order of St. John in Jerusalem, and their standard of knowledge and technique is maintained by refresher courses which experience has shown is very essential.

During the year one nurse received a course of instruction extending over 4 months, and one medical officer and two ophthalmic clinic nurses attended "refresher" courses of training.

In addition, it is the practice, on account of the amount of routine preventive work conducted by school nurses, to require them to attend the hospital for instruction in methods and technique. During the summer vacation of the schools, three school nurses received this training.

GOVERNMENT OPHTHALMIC CLINICS - 1930

Location.	Total attendances.	No. of new patients.	No. admitted to Hospital.	Operations.		Classifications of conditions found in New Patients.											
				Trichiasis.	Other Conditions.	Clear lids.	Acute Conjunctivitis.	Acute Conjunctivitis with corneal ulceration.	Trachoma.	Trachoma with corneal complications.	Corneal ulcers other than above.	Corneal conditions other than ulcers.	Endophthalmia.	Varia.	Blind in both eyes.	Blind in one eye.
Ramleh.	34731	4112	—	166	138	463	1077	90	3629	696	158	683	452	1480	45	344
Gaza.	52289	2079	52	121	103	502	1565	286	1577	134	101	252	176	331	23	150
Acre.	15412	1209	30	66	104	242	453	19	967	74	58	126	56	515	5	42
Beersheba.	12421	1165	20	22	34	514	523	16	651	114	13	123	12	57	3	59
Nablus.	30691	4048	6	33	281	1696	1830	93	2861	611	121	458	107	715	10	101
Tulkarem.	16663	4281	—	186	355	447	1907	99	3834	1057	10	690	186	1443	42	183
TOTALS.	162207	16894	108	594	1015	3864	7355	603	13519	2686	461	2332	989	4541	128	879

8. Lunacy.

The year has been one of very great difficuly and the inevitable postponement, for financial reasons, of progress upon the project to construct a Government Mental Hospital with adequate accommodation for at least acute cases means that the problem of housing violent and dangerous cases of insanity will be an administrative problem of increasing difficulty and urgency from day to day. The situation is not without danger. There is normal accommodation in the country for 118 mental patients. This accommodation has actually been occupied by a daily average of 144 patients. In addition, there is a waiting list for admission to the Government Mental Hospital of no less than 82 acute cases many of whom are dangerous to themselves or others. These figures do not include the more tractable or mild cases of mental disease which can be cared for at home many of whom could benefit by institutional treatment. Meanwhile progress has been made with the plans of the new hospital and the site which was obtained last year has been planted with trees.

The criminal lunatic section in the citadel at Acre was opened and accommodates 10 cases of this category. The prisons and lock-ups throughout the country have from time to time accommodated mental cases placed under arrest on charges of indecency, assault or other misdemeanours. There is no accommodation for female prisoners whose mental condition is abnormal and the necessity of detaining these temporarily in the women's prison has led to overcrowding of the other inmates and interference with proper prison discipline.

At the end of the year, the following numbers of insane patients were in hospital or awaiting admission:—

	Arabs.	Jews.	Total.
In Government Mental Hospital.	45	23	68
In Ezrath Nashim Home.	—	80	80
Awaiting admission.	47	35	82

The Government hospital had an average of 64 patients daily in hospital. To provide further accommodation, the dining room of the female patients was used as a ward and a proposal put forward to construct a hut on the grounds for day-room and dining purposes. A similar arrangement in the male side will enable ten to fifteen additional acute male cases to be admitted.

The Ezrath Nashim home accommodated a daily average of 79 cases. The proper accommodation of the institution is 50. Progress was made with the scheme of improvement of the building and equipment made possible by a grant-in-aid approved by Government.

Three patients died in the Government hospital, one while awaiting admission, and 2 patients died in the Ezrath Nashim Home.

A classification of patients admitted to hospitals during the year is as follows:—

Diagnosis.	Government Mental Hospital.	Ezrath Nashim Home.
Dementia Praecox.	9	19
Simple Dementia.	2	—
General Paralysis.	—	1
Paranoia.	1	4
Melancholic States.	1	1
Pellagrous Insanity.	1	1
Mania.	5	5
Paraphrenia.	1	—
Other conditions.	1	1
	21	32

Hospital.	Bed Strength.	Admissions.				Deaths.	Discharges.	Daily average in Hospital.
		Moslems.	Christians.	Jews.	Others.			
Government Mental Hospital.	68	4	9	7	—	3	12	64.7
Ezrath Nashim, Home.	50	—	—	32	—	2	30	79.6

MENTAL HOSPITAL RETURNS.

General Statistical Tables.

		Number Admitted during 1930.	Daily Average Number during 1930.	Number of attendants.				Discharged.			No. of patients who died during 1930.	Average stay of those		
				Resident.		Non-Resident.								
				Employed in attendance on the patients.	Employed as servants or only partially as attendants.	Employed in attendance on the patients.	Employed as servants or only partially as attendants.	Cured.	Relieved.	Not improved.		Died in 1930.	Discharged in 1930.	Remaining at end of 1930
												Days.	Days.	Days.
Government Mental Hospital,	M.	10	37.4	10	4	—	4	2	7	—	2	120	212	1534
Bethlehem.	F.	10	27.2	11	4	—	4	3	—	—	1	13	115	1313
Ezrath Nashim Home,	M.	13	30.0	5	—	1	1	3	7	3	—	—	586	1474
Jerusalem.	F.	19	50.0	—	—	9	—	2	9	6	2	863	553	1629
TOTALS.		52	—	26	8	10	9	10	23	9	5	—	—	—

9. School Medical Service.

The following table compiled by the Department of Education, indicates the number of school children in Government and non-Government schools.

The numbers have increased from 69,911 in 1929 to 74,460 in 1930.

	No. of Schools	No. of Boys	No. of Girls	No. of Teachers
Government Schools in Towns.	53	5770	4124	405
Government Schools in Villages.	257	12404	658	355
Non-Government Schools.	566	28309	23195	2709
Totals.	876	46483	27977	3469

The Department's Medical Officers and nurses conduct the school medical service in all Government Schools and in any non-Government schools which make application for the service. Applications to open schools are referred by the Department of Education to this Department for sanitary reports upon the premises proposed to be occupied. Such improvements as are necessary to ensure a requisite standard of hygiene are prescribed and on completion a certificate given to the Department of Education. The system of short leases which prevails in the country leads to the necessity of surveying a very large number of new premises each year and several inspections may be required before the sanitary requirements can be certified as having been satisfactorily completed. This necessary service employs a great deal of the time and energy of departmental officers. The result is, however, reflected in a slow but steady improvement in this class of school. The sanitary condition of all Government schools is also subject to regular inspections and improvements recommended as required.

The following table shows the medical work carried out by school nurses and Medical Officers of the Department:

	Town Schools	Village Schools	Total
Lectures to Teachers.			
Number of Hygiene Lectures by Medical Officers to Teachers.	30	18	48
Number of Teachers attending Lectures.	233	88	321
Medical Inspection of Pupils:			
Number of children medically examined.	5918	5140	11058
" " with trachoma.	2402	3499	5901
" " with other eye disease.	312	201	513
" " with defective vision.	100	94	194
" " verminous head or body.	186	268	454
" " 4 or more teeth badly decayed.	23	36	59
" " with enlarged spleen.	83	338	421
" " with heart disease.	11	1	12
" " with lung affections.	22	14	36
" " tuberculous disease.	1	17	18
" " mentally defective.	—	1	1
" " vaccinated against smallpox.	1977	621	2598
Ophthalmic Treatment:			
Number of attendances of children for treatment of trachoma etc. by teacher or school nurse.	792,185	1,320,766	2,112,951

The percentage of trachoma in children medically examined still continues to decrease, being 40% in town schools compared with 44% in 1929, and in village schools 68% compared with 71%. Cleanliness is being maintained in regard to vermin of the head or body.

The spleen rate of children examined decreased from 6% in 1929 to 4%. 1701 children were treated for malaria. School closure was not necessitated on account of infectious disease. Measles was the most prevalent infectious disease.

25000 children in Jewish schools were under health supervision by the Hadassah Medical Organization which reports as follows:—

"After Jerusalem, Tel-Aviv and Haifa, the school children of Tiberias and Safad were next cured of scabies. In this manner nearly all the school children of the Jewish population were freed from this affection. The percentage of trachoma continued to decline from 10.3% in the winter of 1929 to 10% in 1930. The groups of health scouts continued to develop in the right direction and their influence shows a marked improvement in the sanitary condition of their surroundings. Groups exist in 14 public schools in Jerusalem, Tel-Aviv and Haifa. One of their new activities is the arrangement for the sale of clean hygienic and cheap milk and sour milk from Jewish farms to school children.

Great success marked the activities of the clinic in Jerusalem for backward children. Preparations are in hand for the opening of a similar one in Tel-Aviv during 1931. The children who come for treatment belong to all communities and classes. The number of children attending in Jerusalem is 50".

Four playgrounds are now permanently maintained from the Guggenheimer Playgrounds Fund, three in Jerusalem and one in Tel-Aviv. In summer 4 additional ones were opened, 2 in Jerusalem, 1 in Haifa, and 1 in Safad. A summer camp was arranged for 70 Jerusalem children.

10. Railway Medical Service.

A Senior Medical Officer was appointed and took up duty on Sept. 26th, 1930. In addition to his medical and administrative duties for the Railways, he is available for consultation by Government officers and their families and for operative surgery in the Government Hospital in collaboration with the Medical Officer in charge.

The new dispensary and consulting room were opened in premises adjacent to the station and headquarter establishment of the Railway at Haifa. This will obviate a loss of working time by employees who previously had to proceed to the Government Hospital in the centre of the town for medical examination and treatment.

6 railway medical orderlies are employed. They are stationed at Haifa, Lydda, Rafa, Kantara, Nur es Shems and 'Affula. These orderlies, in addition to sanitary duties on the section of the line allotted them, give first aid treatment in minor cases of injury or sickness amongst the employees.

First aid emergency equipment is kept at Railway stations, workshops and in all brake vans.

Ambulance coaches are stationed at Lydda for the standard gauge line, aud at Haifa for the narrow gauge.

A casualty hospital of 8 beds, with emergency equipment, is maintained at Kantara.

The health of the railway personnel was satisfactory. There was a slight increase of admissions to hospital. 213 employees were admitted compared with 179 in 1929, 216 in 1928 and 236 in 1927. The average duration of stay in hospital was 9 days compared with 8.8 in 1929. Dispensary attendances were 9104 compared with 9232 in the previous year.

Certain very necessary improvements were made to the water supply plant at Kantara. The purchase of a new filtration plant will require to be considered before long. The present plant which was installed for military purposes during the war is constantly under repair.

11. Police and Frontier Force Medical Arrangements.

The sick of the British police section were hospitalized principally in Government hospitals in Jerusalem and Haifa, and the Municipal hospitals at Nablus and Jaffa. Altogether 312 patients were treated in hospital with an average stay of 11 days. About 20% of the conditions for which British police were admitted were injuries many of which were of a minor nature. Free dental treatment was approved by Medical Boards in 192 cases. Circular instructions were issued for the guidance of Medical Boards approving dental treatment. Standing orders for sanitation and hygiene were issued during the year.

From the Palestinian section of the police, there were 366 admissions to hospital compared with 422 in 1929. The average stay in hospital was 7.9 days.

The health of the Trans-Jordan Frontier Force was good, 496 patients were admitted to hospital compared with 523 in 1929. Of these, 375 were treated in Trans-Jordan Frontier Force hospitals at Zarqa and Ma'an, and 121 in Government and other hospitals.

There were 70 cases of primary malaria for the most part contracted in the Jordan valley.

Detachments were stationed during the year at Roshpina, Samakh, Jisr-el-Majami and Beisan. Medical attention was given to these detachments by civil medical practitioners except at Beisan where a Medical Officer of the Department of Health undertook this duty.

Sanitary improvements were made in all permanent camps in Palestine and at Zarqa, the headquarters in Trans-Jordan. The antimalarial work and sanitation were maintained efficiently. A scheme for the improvement of the water supply at Zarqa is in hand.

12. Prison Medical Service.

384 prisoners were admitted to hospital and 900 were treated in prison sick detention wards. The corresponding figures for last year were 372 and 1089.

The sanitary condition of Acre prison is now much improved as a result of works carried through last year. The accommodation in the industrial section, however, is still requiring improvement.

The criminal lunatic section was completed and accommodates under satisfactory conditions 10 prisoners certified to be insane. Trained mental attendants were provided by the Department.

In the tuberculosis section of the prison, there were 17 admissions and 15 discharges. One case died from pulmonary phthisis.

The premises occupied by the Central Prison, Jerusalem, are not satisfactory, and only minor improvements can be effected in a building which is structurally unsuitable. The women's section was transferred to premises in Bethlehem. While this in itself was an improvement, the building in Bethlehem is not suitably situated and has not adequate exercise ground for a permanent prison. The total accommodation is not sufficient for ultimate requirements.

In Gaza where the accommodation has for years been grossly overcrowded, a new lock-up was constructed. The kitchen arrangements and sanitation of the Jaffa lock-up were improved by Public Works Department, and a sick detention room provided.

The overcrowding of lock-ups has been relieved to some extent by the transfer of prisoners awaiting trial to the Central Prisons at Acre and Jerusalem.

Of the four Jail Labour Companies, that at Majd el Kurum was closed during the year.

13. Training in First Aid.

Courses of instruction under the rules of the St. John Ambulance Association were given by Medical Officers of the Department to police, railway personnel and departmental staff.

The results of examinations are as follows:—

Department.	No. of Candidates.	Certificates			Voucher		Medallion	
		Passed.	Failed.	Not Exam	Passed.	Failed.	Passed.	Failed.
Palestine Police.	49	21	26	2	—	—	—	—
Palestine Railways.	21	18	2	1	—	—	—	—
Department of Health Personnel.	6	6	—	—	—	—	—	—
TOTAL.	76	45	28	3	—	—	—	—

14. The Medical Commission.

The Central Medical Board carried out 40 examinations during the year of which 13 were to determine the physical fitness of candidates for Government service, 10 in connection with sick leave, 1 to assess disability, 15 to invalid from the service, and 1 in connection with special treatment.

In addition, the Central Medical Board reviewed for ratification all findings of the District Medical Boards.

The 18 District Medical Boards performed 2996 medical examinations in connection with fitness of applicants for service, sick leave, and special treatment. 60% of the cases examined were on behalf of the police. Of recruits for the police force, 34% were rejected as physically unfit compared with 30% in 1929.

Attention was drawn to the large amount of dental treatment required for British police recruited in the United Kingdom and the request made that examining medical officers should not pass recruits as fit whose dental condition was not satisfactory.

EXAMINATIONS BY MEDICAL BOARDS 1930.

	Examinations as to Fitness for Service.											Special and Miscellaneous Examinations.	Total.
	Government Officials and Employees other than Police.				Police								
					Men Serving.				Recruits.				
	Fit for permanent service.	Fit for temporary service only.	Unfit for any service.	Total.	Fit for permanent service.	Fit for temporary service only.	Unfit for any service.	Total.	Fit for permanent service.	Unfit for any service.	Total.		
Central Medical Board	6	3	2	11	1	—	1	2	—	—	—	27	40
Jerusalem District Medical Board	95	3	11	109	48	—	8	56	202	117	319	712	1196
Jaffa " " "	73	1	17	91	30	—	14	44	174	126	300	265	700
Haifa " " "	230	7	72	309	56	—	9	65	200	96	296	159	829
Samaria " " "	32	1	—	33	32	—	1	33	145	34	179	26	271
TOTALS.	436	15	102	553	167	—	33	200	721	373	1094	1189	3036

15. Medico-legal Examinations.

The medico-legal investigations and reports made by Medical Officers of the Department at the request of Police, Magistrates or Coroners, again showed an increase over the previous year. These examinations do not include the laboratory examination of medico-legal specimens and exhibits, but represent only the medical examinations and reports made upon injured persons and medical reports called for by Coroners.

The number of investigations was 4472 compared with 4047 in 1929. Evidence was given in the courts on 948 occasions compared with 838 in the previous year. The number of post-mortem examinations was 414 compared with 436.

A considerable amount of the time of the departmental officers is occupied by medico-legal duties which are not likely to decrease as private medical practitioners are dis-inclined to undertake medico-legal practice.

It is of interest to note that of 645 medico-legal cases of injury admitted to Government and Municipal hospitals 21% were due to motor car accidents.

16. The practice of Medicine, Pharmacy, Dentistry and Midwifery.

At the end of the year there were 649 doctors, 180 pharmacists, 210 dentists and 332 midwives licensed to practise in Palestine. The number of new licences granted during the year were 35 to doctors, 8 to pharmacists, 9 to dentists and 37 to midwives, but owing to departures from the country, deaths and other causes, the number of practising members of the various professions was only increased as follows: — Doctors, 25; Pharmacists, 1; Dentists, 3; and Midwives 34. The most welcome increase at present is that of midwives.

Nine new pharmacies were opened during the year and three closed. The total number of pharmacies conducting business at the end of the year was 110. The general standard of the pharmacies is now satisfactory and compares very favourably with other countries. Continuous inspection is, however, essential to maintain these very necessary standards. This work is under the supervision of a qualified inspector who combines these duties with the supervision and regulation of the trade in dangerous drugs as required by the International Opium Convention. Samples of drugs from stocks, and prescribed medicines dispensed are taken regularly for analysis.

Regulations governing annual examinations for assistant pharmacists and the conditions under which successful candidates may be allowed to practice, were made under the Public Health (Pharmacy) Ordinance 1928.

The Public Health (Pharmacy) Amendment Ordinance of 1930 was promulgated in July 1930. This ordinance grants power to the High Commissioner to make regulations as to conditions under which licences to practise the profession of pharmacy may be granted. These regulations will be published shortly.

Under the powers granted by the Public Health (Pharmacy) Ordinance No. 4 of 1921, a local examination was held for a number of pharmacists holders of a qualification granted by a French school on the basis of which they had been given provisional permits to practise. Two professors of the French University of St. Joseph in Beyrouth assisted the Department by acting as external examiners. Of the 14 candidates, 4 satisfied the examiners and ten were referred to a final examination which will be held in 1931.

In the dental profession, it has been necessary to exercise close supervision over the activities of dental mechanics.

Regulations were made under the Midwives Ordinance regarding the recognition of certain diplomas. In general, a state diploma obtained after a course of instruction of not less than 6 months' duration equivalent to a course given at a state hospital or recognised training school in Palestine, is accepted as a qualification upon which a licence to practise in Palestine may be granted. Rules governing the details of midwifery practise were issued under section 20(2) of the Ordinance. Regulations were also published requiring notifications to be made by a practising midwife to a Government Medical Officer in the case of the death of mother or child or the occurrence of a dead-birth in her practice in the absence of a medical practitioner. A midwife is also required by these regulations to notify any circumstances which may render her liable to become a source of infection.

LICENCES GRANTED TO DOCTORS, PHARMACISTS, DENTISTS AND MIDWIVES - 1930.

			Sex.	Nationality.																																		Totals.	Grand Totals.
				American.	Armenian.	Austrian.	Australian.	British.	Bulgarian.	Canadian.	Chinese.	Czecho-Slovak.	Dutch.	Egyptian.	Esthonian.	French.	German.	Greek.	Hijaz.	Hungarian.	Italian.	Lettish.	Lithuanian.	New-Zealand.	Palestinian.	Persian.	Polish.	Roumanian.	Russian.	Spanish.	Swedish.	Swiss.	Syrian.	Trans-Jordan.	Turkish.	Ukrainian.	Yugo-Slav.		
Medicine	Licences Granted	Prior to 1930	M	7	10	19	—	31	4	1	—	9	—	2	—	3	32	6	—	1	3	1	14	1	135	1	42	9	79	—	1	1	47	1	14	4	—	478	
			F	2	—	1	—	5	2	—	—	1	—	—	—	—	4	—	—	2	—	1	3	—	18	—	18	5	70	—	—	—	—	—	—	4	—	136	
		During 1930	M	1	—	—	—	4	—	—	—	1	—	—	—	—	2	—	1	—	—	—	1	—	6	—	—	2	2	1	—	—	—	—	1	—	1	23	
			F	1	—	—	—	1	—	—	1	1	—	—	—	—	—	—	—	—	—	—	3	—	2	—	2	—	1	—	—	—	—	—	—	—	—	12	649
Pharmacy.	Licences Granted	Prior to 1930	M	3	10	4	1	1	2	1	—	2	—	1	—	1	5	3	—	—	—	1	2	—	53	—	7	3	21	—	—	—	20	—	5	3	—	149	
			F	—	—	1	—	3	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—	6	—	4	—	7	—	—	—	—	—	—	—	—	23	
		During 1930	M	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	—	2	—	—	—	—	6	
			F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	2	180
Dentistry	Licences Granted	Prior to 1930	M	5	3	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	2	—	18	—	4	—	17	—	—	1	2	—	2	—	—	57	
			F	—	—	—	—	—	—	—	1	—	—	—	2	—	—	—	—	—	—	—	6	—	28	—	41	7	56	—	—	—	—	—	—	3	—	144	
		During 1930	M	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	1	—	—	—	—	2	—	1	—	—	—	—	—	—	—	—	—	—	6	
			F	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	3	210
Midwifery	Licences Granted	Prior to 1930	F	4	5	3	—	15	—	—	—	1	—	1	—	2	12	2	—	—	—	—	6	—	134	—	31	1	48	—	1	1	13	—	7	8	—	295	
		During 1930	F	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	26	—	2	2	4	—	—	—	—	—	—	1	—	37	332

17. International Opium Convention.

16 certificates were granted for the importation of dangerous drugs, imports being as follows:—

Medicinal Opium	12,379 grammes.
Morphine.	2,008 "
Heroin.	131 "
Pantopon.	952 "
Cocaine.	4,603 "
Ext. Canabis Indica.	2,325 "
Tinct. Canabis Indica.	900 "

The exporting countries were Germany Switzerland, France, England, and Italy.

In December, a return was rendered by all licensed pharmacies of the amounts of dangerous drugs they had dealt in during the year and giving their estimated requirements for the ensuing year.

Seven reports were forwarded to the Permanent Central Opium Board, as follows:—

4 reports showing the quarterly expenditure in dangerous drugs.

1 report giving the estimated annual requirements.

1 report of amounts of dangerous drugs held by wholesale dealers in drugs, etc.

1 general report.

There is little evidence of drug addiction in Palestine but hashish is smoked by a few of the lower classes.

Considerable quantities of hashish in transit to Egypt were seized by the Police and Customs authorities.

IV. SANITARY ADMINISTRATION.

1. Water Supplies.

Negotiations have proceeded during the year with the concessionaires for the Jerusalem water supply. Discussions centred around the maximum rate which should be permitted to be charged to the public for water supplied. The Department advised that the proposed maximum rate (70 mils per cubic metre) was excessive; that water at this price would not be available for the poorer sections of the population whom it was most desired to benefit, and that unless a lower figure was fixed at which the general public would be willing to connect to the supply, the project would be a financial failure on account of lack of consumers. A committee appointed for the purpose recommended that a maximum rate of 40 mils a cubic metre should be the basis for any further negotiations and that the Government should reserve the right to decrease this maximum after examination of the actual expenses and ascertained working costs of the system if the figures justified this procedure. The committee considered that if the concessionaire was not prepared to agree to these conditions, the Government should take immediate steps to develop the scheme as a municipal undertaking. The concessionaires were requested to send out a technical representative to examine these questions locally.

Meanwhile, consideration is being given to further conservation and exploitation of local sources of supply. An aqueduct, property of the Waqf, which conducts water from Solomon's pools to Bethlehem and to the cisterns of the Mosque of Omar was found to be in disrepair and responsible for a considerable wastage. The question of expropriating the Urtas springs is also under consideration.

The present situation with regard to water is serious owing to the extension of the supply to suburban areas. In the last three years, the amount of water delivered to consumers has increased from 46 1/2 million gallons to 128 million gallons per annum, yet owing to extension of the distribution system, and the increased demand, the position of the individual consumer is no better than before the Ain Farah scheme was put into operation.

The purchase of mechanical filters and chlorinating apparatus for the Solomon's pools supply was unfortunately postponed. This is an essential improvement which cannot longer be delayed. Plans for a high level service reservoir at Mar Elias were approved by the Department and Public Works.

In Haifa, further investigations were made without success at Ain Saadeh. The only adequate source still remains the springs in the Kabri area. A report was made upon the draft scheme for supplying the town from that source.

The Jaffa Municipal supply was extended in accordance with the scheme prepared last year; 90 consumers were connected to the main during the year.

No further advance was made in the scheme for Nablus town.

Progress has been made by the municipalities of Nazareth and Tiberias in extending the distribution mains in the town. In Tiberias one result of the installation of a pure water supply and its extension is well reflected in the decreased incidence of dysentery.

Year.	Number of cases of dysentery notified.	Amount of water in cubic metres delivered to consumers by the town supply.
1926	338	0
1927	381	35,967
1928	204	98,129
1929	64	118,020
1930	37	153,247

The water supply of the Township of Tel-Aviv continues to develop to meet the increasing demands made upon it. One of the bores, however, in the centre of the town was found to be giving unsatisfactory results on laboratory exmination. After a full investigation of the conditions affecting this portion of the supply, it was decided that for the time being the purity of the main supply could be satisfactorily assured by the installation of a chlorinating apparatus at the pumping station.

Arrangements have been made to obtain a grant-in-aid from Government to enable the Acre Municipality to carry out certain essential repairs to the aqueduct which carries the water supply from the Kabri springs.

Investigations were made of the springs at Ain Unkor, Ain Hejeri and Ain Dilbi to explore the possibility of their use to supplement the supply of Hebron town.

Ramleh Municipality have carried out some improvement of the distribution system from surplus revenue.

Proposals have been made to hand over to the Municipality of Beersheba, a Government well in that town with pumping plant on condition that the Municipality operate the plant and furnish Government requirements of water free of charge for a specified number of years.

In Gaza, the Municipality have commenced construction of a new well and pumping plant.

In rural areas, the Department, in cooperation with District Engineers, has advised upon the improvement of several village supplies which the villagers have been in a position to undertake. Plans and projects for water supplies in a number of Jewish settlements were reviewed by the Department.

2. Sanitary Engineering Section.

(a) General

This section has again been fully occupied during the year under review. Building has not been so general as in previous years but this has in a measure been compensated for by the construction of several buildings of a more pretentious nature as for example, the New Government House, King David Hotel, Fast Hotel, in Jerusalem; Refrigerating Cold Storage Plant and Abbattoir in Tel-Aviv; Kaddoorie Agricultural School in Tulkarem. It is satisfactory to note that these buildings which involve modern plumbing, house sanitation and drainage have been constructed mainly by local artisans. Skilled artisans for the more highly specialized branches of the trade are still few in number but this defect will be remedied as opportunities arise for training.

A recent development in the country is the installation of hot water supplies and central heating.

That progress is being made in regard to sanitary engineering is indicated by the interest which is being taken by various British and continental manufacturers of sanitary fittings. Several of these are now represented in Palestine by agencies which maintain a reasonable supply of fittings of a modern type.

Following the practice of recent years, engineers and architects have been encouraged to consult this section of the department in regard to the preparation of plans for new projects.

A course of instruction in sanitation in general with particular reference to camp and barrack sanitation, was given to medical orderlies of the British section of the Palestine Police.

The examination of plumbers which has been held annually in Jaffa for some years, was, in 1930, extended to embrace Jerusalem and Haifa. The examination, which consists of a written paper, an oral examination and practical work, ensures that a candidate, to be successful, has a thorough knowledge, both theoretical and practical, of his trade.

The following is an outline of the projects which engaged the attention of the sanitary engineering section during the year :—

(b) **Water Supplies.**

A further review of possible improvements to Safad water supply; review of plans for proposed reservoir of Jerusalem water supply at Mar Elias; recommendations regarding chlorination of Tel-Aviv supply; review of, and recommendations for, safeguarding of water supplies of various colonies throughout the country, particularly in the Emek; recommendations for protection of water supply to the labour camp of the Palestine Potash Company, Dead Sea area.

(c) **Sewerage Schemes and Drainage Disposal.**

Jerusalem.

Consultations with City Engineer regarding alignment of main sewers and disposal system for same; Shammaa Commercial Quarter drainage system revised; extension of North West drainage system to Mekor Baruch Quarter.

Jaffa.

Recommendations made in regard to house connections to sewerage lines Suq Salahi and Menshiya Quarters, and to the sewer in the Aharon Quarter of Tel-Aviv; review and recommendations in respect of drainage of Merkaz Mischari Quarter in Tel-Aviv; suggestions and advice regarding sewage disposal plant in Tel-Aviv.

Haifa.

Review and suggestions regarding the branch line sewer at Mizpah Quarter.

A further study was made, and suggestions offered in respect of general drainage schemes for Nazareth and Safad.

Advice was given in regard to construction and to improvements of many public and private institutions and of various Government buildings.

(d) **Antimalarial Drainage Work.**

This is reviewed in the appropriate section of this report.

(e) Public Establishments.

Plans of the following were reviewed and inspections made on request for technical advice:—

Jerusalem.

New Abbattoir, Zion Cinema, Sansour Building, King David Hotel, Salameh Buildings, Mizrahi Theatre, New Y.M.C.A. Building, Fast Hotel, Petroleum Area etc.

Jaffa.

Tel-Aviv Abbattoir, Moghrabi Theatre, San Remo Hotel, Cold Storage and Refrigerating Plant, Electric Plant, Tannery etc.

Haifa.

Petroleum Area, Nesher Cement Factory, Aerated Water Factory.

Various other establishments throughout the country.

(f) Town Planning.

Various schemes were reviewed.

3. Municipal Sanitary Services.

The sanitary services in Municipal areas have been satisfactorily maintained. The municipalities of Jerusalem, Jaffa and Haifa, each employ a British Sanitary Surveyor, and in these areas progress is most marked.

Jerusalem has provided for a new Meldrum Destructor and a site for this has been purchased adjacent to that of the new abbattoir. Building operations will be put in hand shortly.

A number of private drains from different quarters, amounting to a total length of 1380 metres were connected to the North West Drainage System.

The municipality constructed a 9" sewer of 152 metres length from the junction of the Mea-Sharim Road and the road leading to the Bukharian Quarter.

In Jaffa, considerable progress is to be recorded. During the year, the main sewerage scheme was extended in various quarters by 1700 metres. Simultaneously with this development of sewerage, the number of sanitary installations in establishments of both a public and a private nature, has increased to a remarkable extent, thus furnishing evidence that the inhabitants are beginning to recognise the value of this branch of sanitation.

In Haifa, several new sewerage lines have been laid during the year. The problem of sewage disposal is, however still unsolved and with the growth of the harbour an increasing nuisance has developed which requires immediate abatement.

The Township of Tel Aviv is seriously handicapped in its progress towards the attainment of efficiency in regard to sanitation by the absence of a sewerage system, and the problem of disposal of sewage has become one of extreme urgency. In addition to this, there still exist a number of areas in which the inhabitants occupy wooden barracks of a most unhygienic type. These areas are for the most part in a most insanitary condition.

The Township employs no Sanitary Surveyor but it is gratifying to be able to record that as a result of prolonged pressure on the part of the Department, the Council has now agreed to appoint such an official with the requisite training and experience.

Despite these major defects, considerable progress in sanitation has been made during the year, particularly in regard to public and private establishments. As examples, the following may be mentioned:—

Construction of a new slaughter-house, new market, new permanent immigration camp, experimental plant for treatment of sewage.

In Safad, plans for the new sewer in the Jewish Quarter have been completed and construction will commence early in the coming year.

Considerable progress has been made in all municipal areas in regard to house sanitation and drainage, and there is evidence to show that the local inhabitants are beginning to appreciate the advantages to be gained by employing western methods in regard to this subject.

4. Village Sanitation.

There is but little to record in the nature of progress. In Arab villages, crowded and congested as they are, little can be demanded other than cleanliness of roads and bye-ways and this is maintained as far as possible by regular visits of Sanitary Inspectors and Medical Officers during their routine tours of the districts.

In several of the Jewish colonies some progress has been made but it is a matter for regret that in most cases the authorities responsible for the building of new settlements are more concerned over the hygienic conditions to be provided for cattle and poultry than they are over the provision of a reasonable standard of sanitation for the settlers.

5. Licensing and Control of Trades and Industries.

The year was marked by the publication of the Petroleum Regulations under the Trades and Industries Ordinance, 1927. They will be brought into effect in the coming year. The regulations will be administered by the Department of Health in consultation, in the case of bulk installations and distributing stores, with the Department of Public Works.

Licences granted and renewed exceeded those in the previous year by 990. With a view to avoiding the imposition of too heavy a financial burden on industry, it has been the policy of the Department in previous years to apply in a gradual fashion the special conditions applicable to the various trades and industries and this practice has been maintained. In the case of new industries all conditions are enforced, whilst in the case of trades which have been exploited in existing premises for a number of years, conditions are applied gradually in such a manner as to protect the interests of the public without causing undue embarrassment to the Licensee.

A review of this branch of the Department's activities during the past ten years shows that the number of licences issued has increased from 6,582 in 1921 to 14,136 in 1930, and the volume of work thereby imposed is evidenced by the fact that the inspections required in this connection in the past year amounted in number to 93,234. In this connection, reference must again be made to the inadequacy of the staff provided by the Licensing Authorities (Municipalities and Local Councils) for this service. In all cases, receipts from licence fees substantially exceed the amounts expended on the service.

Special conditions to be made applicable to 33 of the more important trades were drafted and put into print during the year. The application of these conditions, the main object of which is to control the preparation and sale of articles of food and drink, also ensures that the persons employed perform their work under reasonably hygienic conditions.

As has been indicated elsewhere in this report, the work which has been done on the control of trades and industries has not been lacking in benefit to health conditions in the country generally, and considerable progress has been made towards the provision of the public with a wholesome food supply. Much, however, still remains to be done and this is particularly true of the milk supply, the conditions under which this commodity is produced being far from satisfactory.

The sale of milk in dairies in the larger towns is under control as also, to a lesser extent, is its sale by hawkers; but with the exception of the larger dairy farms little control of the production of milk is possible.

That the public is beginning to appreciate the value of a clean milk supply is evidenced by the appearance on the market of bottled milk bearing such descriptions as "Pasteurized Milk", "Pure Milk" etc. but herein lies a danger inasmuch as such a description may give a false sense of security to the consumer. It has been the custom in this country to boil all milk immediately after delivery, a practice which provides a measure of safety to the consumer, and it is possible that if pasteurization of milk is not properly controlled, this measure may defeat its own object. As matters stand at present, the Department has no powers to prevent the use of such terms and legislation is, therefore, necessary. The special conditions applicable to cowsheds are being enforced and conditions in the towns and in certain of the larger Jewish colonies have improved considerably but, until such time as the producer of small quantities of milk is brought under efficient control, little amelioration can be expected.

The condition of such establishments as aerated water factories, ice factories, etc. presents a more pleasing picture. Such establishments were practically unknown ten or twelve years ago, and the majority of them are consequently housed in new buildings and compare not unfavourably with similar factories in Western countries.

NUMBER OF TRADES AND INDUSTRIES IN PALESTINE LICENSED DURING 1930.

Nature of Trade or Industry and Classification in the Schedule under the Trades and Industries Ordinance 1927.	SUB-DISTRICT OF																			TOTALS.
	Jerusalem	Ramallah	Bethlehem	Hebron	Beersheba	Jaffa	Tel-Aviv	Ramleh	Gaza	Majdal	Haifa	Acre	Nazareth.	Nablus	Tulkarem	Tiberias	Safad	Beisan	Jenin	
Class I. A.																				
1. Hawkers etc. (including water carriers)	274	59	6	3	—	162	245	25	40	4	—	70	390	29	57	139	106	17	2	1628
2. Bakeries, public ovens, bread and bakers shops	91	6	4	25	3	62	109	16	17	9	65	12	20	27	9	27	23	4	5	534
3. Butchers shops and Tripe shops	136	12	28	20	5	22	136	16	27	14	72	13	37	22	12	32	14	5	5	628
4. Cold storage establishments	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
5. Confectionery, sweetmeat, jam and preserved fruit establishments (including pastry shops)	34	—	2	2	4	19	9	10	8	1	17	14	2	35	2	2	4	—	1	166
6. Fish frying shops	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7. Fish shops	16	14	—	—	—	2	29	1	3	—	8	5	3	—	—	6	2	—	1	90
8. Flour and corn mills.	20	2	5	5	5	9	5	—	6	7	11	10	6	15	—	7	2	4	10	129
9. Grain and cereal shops	25	—	10	28	19	29	26	15	34	—	49	13	9	22	10	7	—	2	—	298
10. Groceries, flour stores and shops for the sale of vegetables and fruit	881	159	118	178	81	477	626	199	288	134	521	148	151	282	144	181	137	97	25	4827
11. Ice cream manufacturers, shops and stores	6	1	—	—	—	2	8	—	—	—	4	1	—	—	3	1	1	—	1	28
12. Macaroni factories	1	—	—	—	—	—	3	—	—	—	1	—	—	—	—	—	—	—	—	5
13. Milk, butter, cheese and dairy produce shops	8	—	—	—	—	8	34	28	1	—	6	—	5	7	—	3	2	—	—	102
14. Oil mills and oil stores (other than mineral oil stores)	20	100	9	11	—	2	10	—	7	9	5	10	4	24	2	2	2	—	3	220
15. Pickle factories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16. Poultry shops	38	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	—	—	42
17. Preserved fish depots	—	—	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—	—	9
18. Public kitchens	4	—	—	—	—	—	—	—	10	—	—	20	—	—	—	—	—	6	—	40
19. Aerated water factories	4	—	—	—	—	2	8	1	—	—	2	2	1	—	1	—	1	—	—	22
20. Artificial butter factories	1	—	—	—	—	1	6	—	—	—	1	—	—	—	—	—	—	—	—	9
21. Factories for canning, curing or preserving meat of fish (including sausage factories)	1	—	—	—	—	4	4	—	—	—	5	—	—	—	—	—	—	—	—	14
22. Ice factories and ice stores	8	—	—	—	—	7	6	—	1	—	3	2	2	—	—	3	—	1	—	33
23. Sugar refineries and factories, molasses factories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
24. Public markets (excluding horse and cattle markets)	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	3
25. Establishments for the sale of non-alcoholic beverages	49	—	—	—	—	6	65	—	—	—	84	1	—	—	—	6	—	4	—	215
26. Manufactories of water ice (Barrad)	—	—	2	—	—	8	—	1	2	—	—	—	—	—	—	—	—	—	—	13
27. Enterprises for the supply of water by pipe to the public for domestic or industrial purposes	—	—	—	—	—	—	—	—	—	—	7	—	—	1	—	—	—	—	—	8
28. Carriers and transporters of meat, fish, ice and milk.	24	—	—	7	—	—	6	—	—	—	—	—	—	—	—	7	6	—	—	50
Class II. A.																				
1. Hotels, places for public entertainment and all establishments licensed under the Intoxicating Liquors and Public Entertainments Ordinance 1922 (including Cinemas & Public Halls)	102	13	—	1	—	61	55	19	5	—	146	15	33	3	1	24	9	1	—	488
2. Alcohol depots.	16	—	—	—	—	1	37	—	—	—	—	—	—	—	—	—	—	—	—	54
3. Cafes and restaurants not licensed under the Intoxicating Liquors and Public Entertainments Ordinance 1922	145	10	21	16	12	156	130	50	13	12	149	34	20	56	17	30	18	7	13	909
4. Lodging houses and boarding houses where intoxicating liquors are not sold	24	—	—	4	—	25	41	—	3	—	19	—	4	9	3	22	—	3	3	160
5. Public baths, bathing places and wash houses	12	—	—	5	—	4	5	—	3	—	4	2	—	5	—	—	2	—	—	42
6. Breweries, wine presses and factories of alcohol, vinegar or any fermented or spiritous liquor	9	1	7	—	—	3	—	—	—	—	4	—	1	—	—	—	1	—	—	26
Class II. B.																				
1. Establishments for the retail sale of petroleum, paraffin and mineral oils	38	—	5	7	2	299	190	2	49	—	7	3	12	8	4	30	31	13	11	641
2. Establishments employing power driven machinery	65	—	—	—	—	55	159	29	1	—	80	2	—	2	18	17	—	—	—	428
3. Establishments employing steam under pressure	—	—	—	—	—	—	1	—	—	—	—	—	3	—	—	—	—	—	—	4
4. Garages for motor vehicles (Public garages and garages for public vehicles)	24	11	21	19	—	2	5	3	2	1	18	3	8	6	—	11	5	1	2	142
5. Asphalt and bitumen factories	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
6. Factories of explosive or of articles containing explosives	—	—	—	—	—	—	1	—	—	—	2	—	—	—	—	—	—	—	—	3
7. Match factories and store houses for matches	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	2
8. Stores for explosives (other than ammunition)	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1

Alcohol depots.	16	—	—	—	—	1	37	—	—	—	—	—	—	—	—	—	—	—	54
3. Cafes and restaurants not licensed under the Intoxicating Liquors and Public Entertainments Ordinance 1922	145	10	21	16	12	156	130	50	13	12	149	34	20	56	17	30	18	7	13	909
4. Lodging houses and boarding houses where intoxicating liquors are not sold	24	—	—	4	—	25	41	—	3	—	19	—	4	9	3	22	—	3	3	160
5. Public baths, bathing places and wash houses	12	—	—	5	—	4	5	—	3	—	4	2	—	5	—	—	2	—	—	42
6. Breweries, wine presses and factories of alcohol, vinegar or any fermented or spiritous liquor	9	1	7	—	—	3	—	—	—	—	4	—	1	—	—	—	1	—	—	26
Class II. B.																				
1. Establishments for the retail sale of petroleum, paraffin and mineral oils	38	—	5	7	2	299	190	2	49	—	7	3	12	8	4	30	31	13	11	641
2. Establishments employing power driven machinery	65	—	—	—	—	55	159	29	1	—	80	2	—	2	18	17	—	—	—	428
3. Establishments employing steam under pressure	—	—	—	—	—	—	1	—	—	—	—	—	3	—	—	—	—	—	—	4
4. Garages for motor vehicles (Public garages and garages for public vehicles)	24	11	21	19	—	2	5	3	2	1	18	3	8	6	—	11	5	1	2	142
5. Asphalt and bitumen factories	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
6. Factories of explosive or of articles containing explosives	—	—	—	—	—	—	1	—	—	—	2	—	—	—	—	—	—	—	—	3
7. Match factories and store houses for matches	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	2
8. Stores for explosives (other than ammunition)	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
9. Factories for the manufacture of mineral acids and other chemical products and stores for such products	—	—	—	—	—	1	4	—	—	—	—	—	—	—	—	—	—	—	—	5
10. Petroleum, paraffin and mineral oil stores	2	3	—	5	—	—	—	—	—	—	8	2	2	—	1	3	2	3	2	33
11. Premises for the repair or sale of firearms or ammunition	2	1	—	—	—	3	—	—	2	—	1	—	1	3	—	—	—	—	—	13
12. Warehouses for firearms and Ammunition	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13. Shops for the sale of explosives	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Class III.																				
1. Cattle and horse markets	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Cattle sheds (includes sheds for oxen, sheep and goats)	258	34	37	—	—	1	10	—	—	—	41	—	—	—	—	3	30	—	—	414
3. Dairies in which milk and cream are prepared for distribution or butter or cheese is manufactured	2	—	—	—	—	3	16	—	—	—	30	—	—	—	—	—	2	—	—	53
4. Public stables and khans and all stables or yards in which animals or birds are kept for commercial or industrial purposes	20	2	3	—	2	3	—	7	2	1	12	—	4	10	4	6	8	3	2	89
5. Slaughter houses	—	—	—	—	1	—	2	—	—	—	2	—	—	—	—	—	6	—	—	11
6. Pigsties and Piggeries	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Class I. B.																				
1. Barbers and hairdressers	113	12	14	21	4	103	76	47	32	25	88	34	31	26	18	16	16	6	7	689
2. Dyeworks	2	—	—	4	5	2	—	—	27	17	2	—	—	—	—	—	—	—	—	59
3. Factories for beating, cording, pressing or otherwise preparing wool, hair or jute for trade purposes	—	—	—	—	—	—	—	—	—	—	2	—	—	16	1	—	—	—	—	19
4. Laundries and dry cleaning establishments	26	—	—	1	—	9	27	1	1	—	19	—	—	—	—	4	—	—	—	88
5. Pharmacies and drugstores (including attars)	63	2	2	10	—	27	52	4	1	—	25	41	6	5	—	3	7	—	2	250
6. Rag and second hand clothing establishments	18	1	—	3	—	13	2	3	5	—	2	—	7	1	—	6	7	—	—	68
7. Starch factories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8. Manufacturing chemists and druggists and manufactories of medical products	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
9. Perfumery and scent manufactories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10. Premises on which materials containing poison are made or sold for agricultural purposes	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
11. Public pathological and bacteriological laboratories	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Class I. C.																				
1. Alkali works	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Blood boiling establishments	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3. Bone boilers	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Bone burners	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
5. Crematoria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6. Fellmongers (including furriers)	8	—	2	17	1	—	1	—	8	—	1	—	1	4	1	1	1	—	—	46
7. Gut scrapers	—	—	—	1	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	3
8. Knackers.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9. Lime kilns	7	—	—	—	—	—	—	—	—	—	—	—	—	—	66	—	—	—	—	73
10. Manure depots including depots for refuse and artificial manure depots & factories	—	—	—	—	—	1	2	—	—	—	—	1	—	—	—	—	—	—	—	4
11. Potteries, brick works and tile making industries	10	—	—	9	—	5	30	2	36	—	19	—	—	2	—	1	—	—	—	114
12. Tallow makers	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
13. Tanneries	2	—	—	13	—	—	—	—	—	—	1	—	—	2	—	—	—	—	—	18
14. Tripe boilers	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
15. Candle factories	3	—	1	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	6
16. Mirror factories	—	—	—	—	—	3	1	—	—	—	—	—	—	—	—	—	—	—	—	4
17. Paint factories	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	3
18. Paper factories	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
19. Soap factories (using animal or vegetable oils and fats)	—	—	—	—	—	4	5	4	—	—	3	—	—	25	—	—	—	—	—	41
20. Tobacco, tombac, cigarettes or snuff factories	—	—	—	—	—	2	1	—	—	—	2	—	—	3	—	—	—	—	—	8
21. Cement factories	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
TOTALS.	2617	443	297	415	144	1553	2194	483	634	234	1557	459	764	650	374	601	445	177	95	14136

V. RELIEF.

There still remain 5 orphans in the Syrian Orphanage in Jerusalem towards whose maintenance a contribution is made from Departmental credits. Two of these will become self-supporting in 1931, and it is anticipated that the remainder will cease to be a charge to public funds in 1932.

VI. QUARANTINE SERVICE.

1. General.

Owing to the presence of plague in Alexandria, quarantine restrictions were enforced at the ports of Palestine against arrivals by sea from that port continuously from 31st May until the end of the year.

The presence of cholera in Bombay necessitated the enforcement of quarantine restrictions at Gaza aerodrome against arrivals by air route from Bombay. These measures were applied on 23rd August and remained in operation until the end of the year.

Various modifications of quarantine procedure in the case of "healthy" ships were introduced which bring the measures adopted in Palestine into line with those advocated by International Convention.

Arrangements are being made to confer with the Public Health Department of the Egyptian Government with a view to concluding a local agreement under Art. 57 of the International Sanitary Convention 1926, formulating the sanitary measures to be taken in the event of the appearance in either country of dengue fever.

2. Port Quarantine.

No incidents of particular interest have occurred during the year. 321 passengers, 508 immigrants and 30 pilgrims were detained in the quarantine lazarettes on arrival at the ports. 1433 workmen were also detained.

The records of quarantine procedure are shown in separate tables.

3. Medical Surveillance.

21,950 persons entered the country and were notified for medical surveillance at their destinations. 21,472 reported of whom 5 were found suffering from mumps, 1 from measles. 1 from whooping cough, 1 from cancer and one from apoplexy. The two latter died.

4. Moslem Pilgrimage.

Procedure, as in past years, was adhered to. 513 Palestinian and 28 Trans-Jordanian nationals proceeded under the Department of Health's arrangements. 508 Palestinians returned and 5 died on the pilgrimage. All the Trans-Jordan pilgrims returned. 15 Palestinians and 6 Trans-Jordanians travelled independently.

307 foreign pilgrims of whom 150 were Persians, 98 Afghans, 23 Iraqis, 19 British Indians and 17 Syrians entered Palestine via Samakh en route to the Hijaz and were placed under medical supervision. Arrangements were made to complete vaccination against smallpox and cholera of such as were not in possession of the necessary certificates.

62 foreign pilgrims passed through Kantara in transit or on visit. Those visiting Palestine were escorted to their destinations and handed over to the Health Authorities of the district. Those in transit were escorted to the frontier and notification by telegram was made of their departure to the Health Authorities of their respective destinations.

5. Immigration.

6433 immigrants and travellers permitted to remain as immigrants were recorded during the year. Their classification by countries of origin is as follows: —

Aden	9	India	4	Tanganyika	3
Australia	11	Malta	10	Belgium	18
British Isles	606	New Zealand	3	Denmark	1
Canada	18	South Africa	10	Finland	1
Cyprus	18	Strait Settlements	1	Netherlands	13

Sweden	3	Roumania	316	Morocco	19
France	82	Russia	422	Tunis	1
Italy	78	Switzerland	8	Abyssinia	4
Spain	16	Yugo-Slavia	23	Sudan & Egypt	253
Austria	72	United States		Syria	294
Bulgaria	32	of America	286	Trans-Jordan	4
Czecho-Slovakia	60	Cuba	4	Turkey	75
Dantzig	12	Dominica	8	Hijaz	1
Germany	243	Haiti	4	Iraq	105
Greece	62	Mexico	10	Persia	53
Hungary	24	Argentine	17	Yemen	425
Latvia	91	Brazil	1	Afghanistan	34
Lithuania	123	Colombia	3	China	10
Poland	2419	Venezuela	8	Unclassified	2

5429 immigrants and travellers permitted to remain as immigrants were medically examined under the immigration regulations as follows:—

Examined at	Jerusalem	Jaffa	Haifa	Other Places	Totals
Number examined	683	3435	1131	180	5429
Percentage of total examinations	12.58	63.27	20.83	3.32	—

Of these one was found to be suffering from active syphilis, one from tubercle of the lung and 2 from mental diseases.

RECORD OF QUARANTINE PROCEDURE WITH VESSELS - 1930.

Month.	Free Pratique.			In Quarantine.			Total Vessels	No. of Certificates.	No. of Bills of Health.	No. of Booklets.
	No. of S. S.	No. of S. V.	Totals.	No. of S. S.	No. of S. V.	Totals.				
January.	108	22	130	—	—	—	130	—	3	32
February.	115	8	123	—	—	—	123	—	—	11
March.	120	42	162	—	—	—	162	1	1	63
April.	90	167	257	—	—	—	257	1	3	26
May.	97	172	269	—	—	—	269	1	1	7
June.	81	340	421	—	—	—	421	—	1	36
July.	102	593	695	—	—	—	695	1	3	16
August.	103	363	466	—	—	—	466	—	2	15
September.	107	259	366	—	—	—	366	—	2	9
October.	102	187	289	—	—	—	289	2	—	4
November.	98	91	189	—	—	—	189	4	—	5
December.	113	35	148	—	—	—	148	2	4	—
TOTALS.	1236	2279	3515	—	—	—	3515	12	20	224

RECORD OF PERSONS SUBJECTED TO "MEDICAL OBSERVATION" AT PORTS DURING 1930.

Port of:	Persons detained in Lazarettes.						In Quarantine on Board Ships
	Passengers	Immigrants	Pilgrims	Crew	Workmen	Totals	
Jaffa	63	35	6	–	358	462	–
Haifa	258	473	24	–	1075	1830	–
Acre	—	—	—	–	—	—	–
Gaza	—	—	—	–	—	—	–
TOTALS.	321	508	30	–	1433	2292	—

RECORD OF PERSONS SUBJECTED TO "MEDICAL SURVEILLANCE" DURING 1930.

Entering Palestine at:	Number Notified	Number found at destination		No. not found at destination	Percentage found
		Healthy	Sick		
Jaffa by sea	11771	11429	3	339	97.12
Haifa by sea	9508	9363	6	139	98.53
Acre by sea	–	—	-	–	—
Gaza by sea	–	–	–	–	—
Kantara by land	671	671	–	–	100
TOTALS.	21950	21463	9	478	97.82

VII. LABORATORY SECTION.

I. GENERAL.

Now that the Laboratory Section of the Department of Health has been in existence for ten complete years, it seems opportune to pass briefly in review the principal changes which have occurred during that period and to trace the steady growth of its activities and responsibilities up to the present day, when it is freely admitted to have become, from its consistent and expert service to all branches of Government, a vital factor not only in preventive and in curative medicine but also in the administration of justice and in the collection of revenue.

In 1920 the nucleus of a Government laboratory service was first formed at Haifa, where the work undertaken was primarily diagnostic with a view to facilitating quarantine control. Moreover, at that time, Haifa, principal port of Palestine, appeared, on account of its ready accessibility by railway, road and sea transport, to be the ideal starting point for such a service, which later became extended by the establishment of clinical laboratories in the Government hospitals at Jerusalem, Jaffa, Nablus and Gaza and by the organization of a mobile laboratory for use in connexion with qarantine posts on the land frontiers and for despatch to the scene of any serious epidemic of disease.

The bacteriological needs of Palestine having thus at this early stage in the history of the British Civil Administration been amply provided for, it became necessary to meet the country's chemical and entomological requirements by the apportioning in Jerusalem of suitable laboratory accommodation and by the appointment of an Analytical Chemist and a Medical Entomologist.

In 1922, from considerations of economy and expediency, it was decided to centralize the whole Laboratory Section at Public Health Headquarters in Jerusalem. and at the time of transfer the newly-styled Government Central Laboratories comprised administrative offices together with large, well equipped bacteriological, serological, chemical, physical and entomological laboratories.

Considerable reorganization of staff and adjustment to new ventures marked the period 1922—1924, for the occurrence of a period of even greater financial stress than that under which Palestine seems normally to labour necessitated, inter alia, the abolition of the post of Medical Entomologist and of his entire sub-section—a drastic, retrogressive and unfortunate step. Fortunately for the Department, however, the Entomologist, prior to his departure, was able to complete a detailed survey of the Anopheline mosquitoes, including their classification, breeding places and seasonal prevalence. The retirement of the Government officer responsible for anti-malaria projects naturally caused a considerable curtailment of that work but happily such curtailment was of a temporary nature, being largely counterbalanced by the attachment to the Department during 1922 of two units financed from abroad, viz., the Malaria Survey Section lent by the Rockefeller Foundation and the Malaria Research Unit provided by the Jewish Joint Distribution Committee of America. Although the first-named of these units ceased its activities in 1925, the latter continued to function in a steadily-diminishing form up to the end of 1930 and during the period 1923-1926 actually provided the staff for the Government laboratory at Haifa and undertook, in addition to routine malaria diagnosis and all public health bacteriological work for the Northern District, research work connected with malaria and its control. During 1930 the appointment of a Government Medical Entomologist was regarded as a necessity and finally sanction was obtained for the Controller of the Malaria Research Unit to fill the post, his laboratory constituting part of the Central Laboratories in Jerusalem.

In 1923, the year of enforced reductions in staff, the demands made upon the personnel of the bacteriological division became progressively heavier; thus Government required that the duties following on the erection of a Central Antirabic Institute in 1923 and of a Calf Lymph Establishment in 1924 should be undertaken by the bacteriological personnel but without any increase in a technical staff already burdened by routine. Indeed, it was not until 1927 that a second assistant bacteriologist was appointed to the Central Laboratories and then only because the amonnt of medico-legal investigations, especially the performance of the differentiating precipitin test for human blood, had rendered Government's demands on the existing personnel obviously excessive.

Again in 1923, the activities of the chemical division had increased so rapidly in respect of routine work, investigations into the manufacture and sale of spurious liquors and adulterated articles of food and drink, examinations of a chemico-legal nature and laboratory control of imported material in Customs, that the appointment of an assistant analyst became imperative. To the chemical staff, however, there has been no further addition since that time.

Apart from considerations of changes in personnel, there have also occurred marked improvements in the general equipment and of these the most important merit inclusion in this review. In 1923, in order that the previous difficulties of lighting and heating might be overcome, there was installed a "Silverlite" gas plant which, with no more than ordinary attention, has been in continuous service since June of that year. The plant at an original cost of £. 120 is designed for a maximum output of 200 cubic feet per hour, and supplies about 40 bunsen burners. In the experience of this Department the plant is to be recommended as simple, economical, compact and efficient. In all reports since 1924 complaint has been made of the lack of electric current and of electrical equipment which made it impossible to keep on the premises an adequate reserve of lymph stocks in cold storage. During 1930, however, a municipal supply of electricity became available and approval was obtained for the wiring of the laboratories. Since then a refrigerating plant, built by Messrs. J. and E. Hall, Dartford, in accordance with the Department's specifications, has been erected in the Vaccine Institute. The former method of immersing all treated lymph yields in specially designed containers fixed into the brine tank of an ice factory, is available in emergency.

The machine is an air-cooled twin cylinder "Hallmark". The lymph conservator is maintained at abut 20°F. and a brine pump connection to the previously existing "Smithfield" ice cabinet maintains this at about 44°F. for the storage of vaccines and sera. Control is thermostatic and fully automatic. The total cost of the plant was £P. 200; the saving in ice is of course considerable.

The laboratory water supply has been improved by the installation of an electric pump, but the return of all clean condensed water to the reservoir is necessitated by the high cost and intermittent nature of the Municipal supply. In other directions also the work has been facilitated by the introduction of electrical equipment, more especially in medico and chemico-legal investigations, in large scale manufacture of vaccines and in all operations requiring mechanical power.

Some idea of the increase in work undertaken may be gained from the fact that whereas in 1921 the total number of specimens examined was 9,335 (7,818 bacteriological and 1517 chemical), in 1930 the number has risen to 43,573 (37,214 bacteriological and 6,359 chemical). Again, whereas from 1921 to 1923 no Vaccine Institute existed, today not only the preparation but also the distribution of all the prophylactic and curative vaccines required in the country is effected with an average annual dosage of over 700,000.

In spite of this mass of routine work, time has been found for research along several lines of which the principal have been:—

(1) Enquiry into the incidence, type and diagnosis of typhus fever in Palestine. (2) Flocculation tests—their relative value in the serological diagnosis of syphilis. (3) Schistosomiasis. (4) Anaplasmosis in cattle. (5) Trypanosomiasis. (6) Contagious abortion of cattle. (7) Meningitis produced by Bact. enteritidis Gaertner. (8) Enquiry into an outbreak of meat-poisoning in Jerusalem. (9) Serological diagnosis of the enterica by qualitative receptor analysis. (10) Disinfection of fruits and vegetables. (11) Rabies: decentralisation of treatment; studies relating to the etiology and prevention of paralytic accidents; estimation of the relative immunising values of certain recognised methods; comparison of classical with exalted strains of rabies virus; the appearance and persistence in immune sera of rabicidal antibody evoked by different methods of antirabies treatment; studies in rabies and vaccinia virus. (12) Anti-variolous measures. (13) Entomological investigations connected with malaria, sandfly fever, etc. (14) Entomological survey of Palestine. (15) Scientific evidence obtainable from firearms; identification of bullets. The results of these researches have been published under appropriate titles in various scientific journals.

The biochemical branch of laboratory work has within the past two years undergone considerable development.

The Officer-in-Charge and the Government Analyst have for several years been, in addition to their other duties, examiners on behalf to the Palestine Board of Higher Studies in the subjects of Physiology and Hygiene and of Chemistry respectively, while the Analyst has lately been appointed Keeper of Standards (Weights and Measures).

The staff also gives, on application, courses of intensive laboratory study. Medical Officers of the Department and physicians interested in modern laboratory methods are accepted from time to time.

The Government Central Laboratories in Jerusalem then constitute the headquarters of the Laboratory section, and numerous bacteriological institutes, maintained some by Government and others by private funds, serve the widest areas in each district and ensure by their generous distribution and close co-operation every facility for the rapid and efficient laboratory diagnosis of disease. Thus while, for example, the Hadassah Medical Organization has provided a chain of clinical laboratories at Jerusalem, Jaffa, Haifa, Safad and Tiberias, Government has established at Haifa and Jaffa port laboratories specially equipped and organized to meet the requirements of the International Sanitary Convention. Unfortunately the laboratory service remains in urgent need of a trained bacteriologist at the Jaffa port but this omission will shortly be repaired.

The adequate control over Public Pathological and Bacteriological Institutes has now been secured by limiting the licence to practise to applicants able to fulfil the special conditions made under Section 7 of the Regulation of Trades and Industries Ordinance of 1927.

II. REPORT OF WORK DONE.

The following report, while designed to give some account of the nature and scope of the activities in 1930, will, as formerly, be confined to the work carried out at the Central Laboratories in Jerusalem: for the sake of completeness, however, reference when necessary will be made to the more important diagnostic data furnished by District Institutes.

The report will be presented in the order shown in the subjoined index.

A. BACTERIOLOGICAL DIVISION.

1. Routine Diagnosis.
2. Medico-Legal Investigations.
3. Public Health Examinations.
4. Anti-Rabies Institute.
5. Calf Lymph Establishment. } The Vaccine Institutes.
6. Vaccines and Sera.
7. Research.
8. Statistical Tables.
9. Identification of Anopheline Larvae.
10. Preparation of Spray Insecticides.

B. CHEMICAL DIVISION.

1. Summary of Work done.
2. Notes on work undertaken on behalf of Government Departments.
3. Tables of Analyses performed.

Note: — Tables included at appropriate places in the text comprise: —

Table I. Record of Bacteriological Examinations performed in 1930.

Table II. Laboratory Findings in Malaria during 1930.

Table III. Government Anti-Rabies Institutes. Statistics for 1930.

Table IV. Control of Rabies. Yearly Statement.

Table A. Record of Chemical Examinations.

Table B. Milk Analyses in Central Laboratories and Districts.

Table C. Chemical Examinations performed during the decade 1921-1930.

A. BACTERIOLOGICAL DIVISION.

1. Routine Diagnosis.

Investigations of a routine nature numbering 110,373 have been carried out during the year both in respect of human and of veterinary pathological conditions; of the total number 18,181 required cultural examination. The nature of the specimens submitted and of the examination required together with the positive results of greatest interest is shown in Table I.

(a) Blood Films.

Table II details the laboratory statistics of malaria for 1930. In all 11,430 examinations were made and 1231 proved to be positive, viz, P. vivax 964, P. malariae 6, P. falciparum 261. It being remembered that the distribution, type and incidence of the malarias as shown in Table II can be considered solely from the laboratory point of view as having obtained to the degree indicated in the districts catered for by the laboratories named, percentage incidence for 1930 may be given as follows: — benign tertian 78.3, malignant tertian 21.2, quartan 0.5. With laboratory statisticts of the complete years of diagnostic work now available on this subject (1921-1930) it would appear to be of interest and importance to examine into the relative incidence of the three forms of malaria as they occur in Palestine.

Year.	Number of films examined.	Benign Tertian.	Malignant Tertian.	Quartan Malaria.	Total all forms.
1921	25,000	1916	1093	86	3095
1922	30,000	3374	2319	61	5754
1923	35,253	4230	891	99	5220
1924	25,619	1874	807	56	2737
1925	22,586	1932	749	34	2715
1926	27,345	2406	1664	154	4224
1927	23,923	2636	1490	139	4265
1928	13,954	1351	397	14	1762
1929	13,551	1240	635	34	1909
1930	11,430	964	261	6	1231
Total in 10 years	228,551	21,923	10,306	683	32,912

It will be immediately apparent that any incidence determination based upon 228,551 examinations with 32,912 positive findings eliminates the possibility of any considerable margin of error. Percentage incidence may therefore be stated thus: Benign Tertian 66.6, Malignant Tertian 31.3 and Quartan Malaria 2.1. The figures serve to emphasize the comparative rarity of the quartan form but this may in part be due to the careful control exercised over the diagnosis of quartan parasites: each film diagnosed positive by district institutes must be forwarded to the Central Laboratories for corroboration. It is noteworthy that during the decennium 1921-1930 the quartan form has but three times exceeded the relative incidence of 2 per cent, on all three occasions due to a localized outbreak, viz., in 1921 it was 2.8, in 1926 it was 3.6 and 3.2 in 1927. The Spironema recurrentis was demonstrated on 19 occasions.

(b) **Blood Examinations.**

Red and white cell enumerations totalled 2374, estimations of the haemoglobin index 2143, differential counts 2336. From 2561 specimens received for blood culture the following organisms were recovered on the number of occasions indicated: Bact. typhosum 75 times, paratyphosum B 3, Str. pyogenes 10, Str. pneumoniae 9, Staphylococcus 9, Brucella melitensis 9.

(c) **Serological Investigations.**

(1) Agglutination Tests.

8967 agglutination tests were performed. In the serological diagnosis of the enterica the method of qualitative receptor analysis is now solely employed and our experience of the past five years shows the method to be most reliable and to be a great improvement over the original Gruber-Widal test. In the diagnosis of the mild form of typhus fever which is encountered in Palestine sera from positive cases show on or about the 4th day of the disease an easily-read small-flake agglutination in a 1 : 100 dilution with both H and O forms of Proteus vulgaris ^{x}19. Positive reactions in diagnostic dilution were obtained with the following organisms: Bact. typhosum, paratyphosum A, B and C, enteritidis Gaertner, dysenteriae Flexner-Y, Brucella melitensis, Proteus vulgaris ^{x}19 on 682, 30, 195, 12, 8, 12, 27, 51 occasions respectively.

(2) Diagnosis of Syphilis.

The Wassermann Reaction — M. R. C. Method 1, Rochester Row technique — has been carried out on 3945 sera, of which 936 proved positive. This method superseded the previously employed Boas modification in 1926. The Kahn Reaction also was performed on 525 sera and of this number 56 gave a positive result. All sera for the diagnosis of syphilis are now forwarded to the Central Laboratories in Jerusalem, centralization having been found necessary to secure uniformity of results.

(3) Precipitin Reactions.

During the year it was considered essential by the Attorney General's Department to have the specific protein test applied on 69 occasions to differentiate human from other blood. The value to the Police Authorities of the differentiating precipitin reaction would appear to be very great when judged by the number of applications made for its performance in a country so small as Palestine.

(d) **Histological Sections.**

The histopathology of 120 tissue sections was determined. The following human pathological conditions were diagnosed: — Fibroma, fibro-lipoma, chondroma, fibro-myoma, sarcoma, adenoma, adeno-carcinoma, rodent ulcer, epithelioma, chorion-epithelioma, carcinoma, endothelioma, papilloma. Of the total 64 brains extracted by veterinary officers and forwarded to the Central Laboratories for diagnosis, Negri bodies were demonstrated by Mann's stain in 32.

(e) **Faeces.**

Investigations carried out on faecal specimens received during 1930 numbered 12,768 microscopic and 8516 cultural.

Findings by microscopic examination may thus be summarized: —

(1) *Protozoa:* Entamoeba histolytica 600; Giardia intestinalis 525: Chilomastix mesnili 60; Trichomonas intestinalis 557.

(2) *Worm ova:* Trichuris trichiura 835; Ascaris lumbricoidis 606; Enterobius vermicularis 34; Ankylostoma duodenale 25; Schistosoma mansoni 7; Taenia saginata 196; Hymenolepis nana 110; Heterophyes heterophyes 33; Botriocephalus latus 2.

With regard to the genus Heterophyes, three species have been shown by Wittenberg to occur in Palestine, viz; *H. heterophyes* (Sieb), *H. dispar* Looss, *H, aequalis* Looss. Dissections of street dogs and cats in Jerusalem showed that species of the genus Heterophyes are these animals' most common parasites. Further, it was determined that each of the following eight species of fish are carriers of all three species of metacercariae: *Mugil cephalus, M. capito, M. auratus, Epinephelus enaeus, Tilapia simonis, Lichia amia, L. Glauca, Barbus Canus.*

Although on seven accasions the ova of S. mansoni have been discovered, there is no authentic case of intestinal schistosomiasis having been contracted in Palestine.

During the period 1921-1930, positive findings of worm ova in faeces have numbered 22,100. Percentage incidence of helminthic infections in Palestine may now be indicated with considerable accuracy, viz; Trichuris trichiura 52, Ascaris lumbricoides 32.6, Taenia saginata 7.4, Hymenolepis nana 3.1, Enterobius vermicularis 2.2, Heterophyes heterophyes 1.3, Ankylostoma duodenale 0.8, Schistosoma mansoni 0.5, Dibothriocephalus latus 0.1.

From cultural examination of the stool, the Bact. typhosum was isolated 34 times, paratyphosum A and B once each, dysenteriae Shiga, Flexner-Y and Strong 56, 216 and 5 times respectively.

(f) **Urines.**

Microscopic examinations of the urine totalled 16,759, routine chemical 21,206 and cultural investigations 2483. Certain organisms were isolated by culture, viz.; Bact. coli 66 times, coli communior 12 times and typhosum 7 times. On 15 occasions the ova of Schistosoma haematobium were discovered.

(g) **Sputa.**

The Mycobacterium tuberculosis was proved to be present in 593 specimens out of a total 2620 examined. The Str. pneumoniae was present on 30 occasions.

(h) **Pharyngeal Swabs (including Naso-pharyngeal).**

These numbered 3691, the more important pathological findings being C. diphtheriae 271, Vincent's angina 77, Mycobact. leprae 11. Periodic examination of the lepers at the hospital of the International Moravian Society continues to form part of the routine duties of the Laboratory. Medical Officers can readily measure, by such means, the efficacy of the different methods of treatment.

(i) **Urethral Smears.**

Neisseria gonorrhoeae was found in 123 out of the total 590 urethral smears forwarded for examination.

(j) **Lumbar Puncture.**

This operation was performed on 149 occasions. Microscopic and cultural examinations showed the following organisms to be the causal agents of disease: — N. meningitidis on 2 occasions, Str. pneumoniae on 9, Str. pyogenes 11, Staphylococcus 6, Myco tuberculosis 3. In this connexion it may be recalled that meningitis due to Bact. enteritidis Gaertner was first recorded as a pathological entity by work done at the Central Laboratories in 1925. The then unique occurrence was described in the Journal of Hygiene, Cambridge, Vol. XXV. No. 2, July, 14, 1926.

(k) **Conjunctival Exudates.**

Examination of 193 such smears incriminated as the cause of conjunctivitis the Haemophilus of Koch-Weeks 68 times, Haem. lacunatus 21, N. gonorrhoeae 20.

(l) **Rabies.**

On behalf on the Veterinary authorities 64 microscopical examinations were made of brains extracted from suspectedly rabid animals. In 32 cases Negri bodies were found.

The biological test was applied on 21 occasions and proved positive on 15 occasions. It is of interest to observe that the biological test, when applied in the diagnosis of rabies here, has produced symptoms on 90 occasions, but in respect of only 6 viruses has the incubation period been less than 15 days, viz., 8,11,11,12,14, and 14; in the others it has varied between 15 and 28 days.

(m) **Blood Grouping for Blood Transfusion.**

During the year the importance of having each Government hospital supplied with a roster of volunteers proved suitable as donors became increasingly apparent. In May, therefore, steps were taken towards the establishment of an adequate blood transfusion service on behalf of the British community in Palestine. Since that time 52 volunteers from the British section of the Palestine Police have expressed their willingness to act as blood donors in cases of emergency, but of that number some have since left the country while others have for various reasons proved unsuitable for service in the desired capacity. At present there are in Palestine, however, 41 available donors whose sera have been grouped and fully tested. Correlation of existing classifications of blood groups show 20 to be in Jansky I = Moss IV = International Nomenclature 0, 12 in Jansky II = Moss II = I.N. A., 7 in Jansky III = Moss III = I.N. B, 2 in Jansky IV = Moss I = I.N. AB.

2. Medico-Legal Investigations.

These dealt mainly with enquiries into the nature and origin of stains on clothing, weapons, saddles, earth, wood-shavings and the like and such necessitated repeated performance of the differentiating precipitin test for human blood. Other investigations numbering 53 included the examination of garments for the presence of spermatozoa in cases of alleged rape and sodomy, determination of the type of material expelled from the uterus, identification of hairs and fibres and pathological examinations in cases of death from unknown causes.

On 44 occasions, in cases connected with murder charges, the benzidine test showed stains on clothing etc. to be of blood, while the precipitin test proved the blood to be of human origin in 18 of the exhibits. The cases from which the police exhibits were derived and concerning which laboratory opinion was sought, numbered 16, viz., 8 from Palestine and 8 from Trans-Jordan.

The finding of spermatozoa on 11 articles of clothing helped to incriminate 7 accused persons from whom a total number of 15 exhibits had been forwarded by the police. Of the 7 accused, 3 were found guilty of rape, 2 from Palestine and 1 from Trans-Jordan, while 4 were proved to have been guilty of sodomy. In Palestine also 2 cases of criminal abortion were proved.

3. Public Health Examinations.

(a) **Water.**

Complete bacteriological examinations have been made on all samples of ordinary drinking water, aerated waters and ice submitted through District Health Offices. During 1930 the total number of samples received was 930. Such continuous bacteriological control ensures, for public water supplies declared free from pollution by the Sanitary Authority and for the products of aerated water factories and of ice syndicates alike, that standard of purity required by Public Health regulations. Samples from cisterns and storage tanks, though in the main unsatisfactory and sometimes highly polluted, have rarely if ever shown the presence of pathogenic organisms.

(b) **Milk.**

Over 600 milk samples were examined mostly in respect of purity. Investigation has consisted of a numerical estimation of bacteria per cubic centimetre of milk. The comparative rarity with which samples of mixed milks are submitted for the purpose of detecting tuberculous cows in dairy herds is to be explained by the fact that bovine tuberculosis, as determined by slaughter-house experience, is seldom encountered.

(c) **Examination of Imported Shaving Brushes.**

Since 16th March, 1920, Customs Superintendents have been required to forward for examination to the Central Laboratories, 5 percent of all consignments of shaving brushes imported. The continued application of this measure has successfully precluded the entry into Palestine of anthrax-infected brushes.

During 1930, the total number of consignments from which samples were examined was 273.

(d) **Examination of Vaccines and Sera.**

Imported vaccines and sera and other products of bacterial origin are not released from Customs until and unless a satisfactory report has been received upon a sample sent to the Central Laboratories. In the case of curative and prophylactic vaccines and sera, the question is largely one of sterility. Some 52 specimens were examined during the year.

(e) **Identification and Examination of Snails.**

One important result of the unremitting search which has continued since 1920 for the intermediate hosts of S. haemotobium has been the discovery of three endemic foci of infection, viz: the Jaffa area, Um-Khaled near Tulkarem, and Hedera. These foci of urinary schistosomiasis have been discovered at different times and in the order named. In each case the snail has been identified as *Isodora truncata*, the form which under the name of *I. contorta* has been incriminated with the dispersal of schistosomiasis in the Mediterranean littoral, Africa and the Middle East generally.

(f) **Examination of Rats for Plague.**

On account of the fact that within the last decennium bubonic plague has occurred at Jaffa and at Haifa, systematic rat catching by trained personnel has been regularly practised in the port towns and in the commercial areas of ports in order that examination of rats for plague may be effected.

It is expected that by the end of next year some indication of the varieties of fleas present on rats may be forthcoming, as this investigation will be among the first carried out by the Medical Entomologist whose appointment is daily expected.

Rats numbering 686 were examined during 1930.

(g) **Identification and Examination of Snakes.**

Venomous snakes are of comparatively rare occurrence in Palestine and the number of species is small. Viperine types, which for practical purposes, constitute the sole problem, are seldom found in densely populated areas, their habitat being characteristically the desert or stony hills. The following list shows the occurrence of venomous snakes and has been compiled from information given by Aharoni.

Name of Snake.	Locality where found.
1. Vipera euphratica (Martin)	Galilee and the lower Jordan Valley, including Jericho.
2. Vipera confluenta (Cope)	Sand dunes of Mediterranean littoral in Judea and an area extending somewhat inland therefrom.
3. Vipera xanthina vel Zantina (Gray)	All areas inhabited by man.
4. Vipera ammodytes var meridionalis (Boulenger)	Sunny slopes of Hermon (rare)
5. Vipera cerastes (Cerastes cornutus)	All desert region of southern Judea, but especially the territory south of Dead Sea basin and spreading into Wadi Arabah.
6. Echis arenicola (Boie)	Dead Sea basin but thence extending N.W. to Wadi Fara.
7. Cobra. Naja haje.	Extreme south of Palestine occurring south of Gaza and more rarely near Beersheba.

During the year Vipera euphratica. V. confluenta, V. xanthina, V. cerastes, Micrelaps muelleri and Psammophis monileger have been forwarded for examination.

In so far as human cases of snake bite are concerned, 28 have been recorded within the last five years and of that number 20 have proved fatal. This very high mortality-rate is not, however, to be ascribed to inadequate specific treatment but to the fact that either no treatment or some useless popular remedy has been applied. These cases have occurred as follows: —

Year.	No. of bites	No. of deaths.	Localities.
1926	3	3	Tiberias.
1927	1	0	Safad.
1928	11	8	Safad, Tulkarem, Tiberias, Nablus.
1929	10	7	Safad, Tiberias, Nablus.
1930	3	2	Tiberias, Nablus.

All 28 cases were bitten by one or other viperine type. Specific treatment was, where possible, carried out with "sèrum antivenimeux AN" prepared at the Institut Pasteur, Paris, a remedy eminently satisfactory in cases brought to hospitals within reasonable time.

(h) **General.**

Laboratory opinion has been continuously sought as to the suitability for human consumption of preserved foods, both imported and of local manufacture. As is to be expected, an extensive use is made here of food substances artificially preserved against natural decomposition and the need of exercising the strictest possible laboratory control over such articles exposed for sale requires no emphasis.

With regard to further spheres of public health in which the Government Laboratories play an important part the following may be cited: (1) diagnosis and control of communicable diseases; (2) investigation into the subject of human carriers of infection, (3) protection of the Palestine contingent of the Mecca pilgrimage by vaccine prepared at the Central Laboratories and control of the pilgrimage on its return by an extension of the laboratory facilities for the detection of the cholera "carrier".

4. The Anti-Rabies Institute.

(a) **General.**

Since 1923, the year in which Government first required the Department of Health to provide an anti-rabies service, the policy followed in the administration of treatment has been one of complete decentralisation. The vaccine is prepared by the bacteriological staff of the Central Laboratories, from which it is issued to the various treatment centres established at Jerusalem, Jaffa, Haifa, Ramleh, Tulkarem, Nablus, Gaza, Tiberias, Hebron, Hadera, Rehovot, Petah Tiqva, 'Affula, Kefar Sava, Tel Aviv and Safad. Issue is also made to Trans-Jordan and to the Royal Air Force and Army stationed in Palestine. The completeness of decentralisation of treatment has permitted in this country a fulfilment of Sir David Semple's prediction of 1911; that, with the adoption of a carbolised virus as vaccine, one central institute would, in addition to carrying out treatment on behalf of patients within its area of service, assuredly supply a whole country with an efficacious vaccine ready to be administered to bitten persons at other centres. The Central Laboratories, therefore, are not only responsible for the manufacture and issue of all the anti-rabies vaccine required for Palestine and Trans-Jordan but, by acting as the Jerusalem treatment station, serve also to control the efficacy of the product.

From the date of inception of the Institute a carbolised virus has been exclusively employed, a virus killed by the combined action of phenol (1 per cent) and heat (37°C. for 24 hours), while the vaccine used in treatment has consisted of a 1 per cent rabid brain emulsion in 0.5 per cent carbolic solution. The complete course of treatment comprises the daily injection of 5 c.c. intracutaneously on 14 consecutive days; the dosage is universal, remaining constant for all bitten persons, irrespective of age, sex, severity of bite, location and multiplicity of wounding, interposition of clothing and intercurrent disease.

Prior to 1925, however, the dosage given was only 2 c.c. daily for 14 days, but this was abandoned in favour of the larger quantity when results gave a total death rate of 1.2 per cent among 748 persons treated.

During 1930, manufacture of carbolised anti-rabies vaccine totalled 109,680 c.c. and issue 100,620 c.c. The strain of fixed virus used throughout has been one obtained many years ago from the Pasteur Institute in Paris; it has proved itself in experiment and in human practice an excellent immunising agent and its virulence has shown remarkable fixity.

(b) Results of Anti-Rabies Treatment.

Table III is a classified record of the number of persons treated in anti-rabies centres in Palestine during 1930 with the carbolised virus prepared at and issued by the Central Laboratories.

(c) Information regarding the Efficacy of Carbolized Virus in Cases of Wolf-bite.

During the past eight years, twelve Arab peasants attending for anti-rabies treatment, other than those affected by the incident about to be described, have incriminated wolves as their attackers, but until February, 1930, no authentic case of wolf-bite had been brought to our notice and no biting animal had been identified as a true wolf by a competent zoologist.

On February 15, 1930, early in the morning, a male wolf, *Canis lupus,* one of a pair which had been recently observed in the district, made its appearance at El-Auja, a small Arab settlement near Jericho, and caused much excitement by its indiscriminate attack on villagers, dogs and goats alike. On quitting the settlement, the animal made for a flock of sheep grazing some distance away but by chance it was observed by a herdsman, Suleiman el Hussein (Case 1) who, after a sharp tussle during which he was badly wounded, succeeded in dispatching it with a dagger. In all six persons received injuries of a sufficiently serious nature to necessitate their removal to the Government Hospital, Jerusalem, for general and specific treatment. The five dogs and twenty goats bitten were destroyed.

Three weeks after this occurrence, on March 8th the female wolf visited the same settlement El-Auja, and savagely attacked the inhabitants; among the three persons bitten was Suleiman El-Hussein, who killed this second folf also with his dagger. All three wounded were brought immediately to Jerusalem for treatment but on this occasion Suleiman El-Hussein received no anti-rabies vaccine.

Including then the herdsman (Case 1), who was bitten by both animals, eight persons were injured by this pair of wolves.

The nature of the wounding may thus be tabulated :

No. of case.	Sex.	Age.	Biting wolf.	NATURE OF WOUNDS		
				No.	Location.	Gravity.
1	M	18	M	18	2 on face involving L. eye; 9 on upper arm and 5 on forearm through clothing; 2 on L. hand.	Severe
			F	7	All on upper extremity through naked skin.	Moderate
2	M	24	M	15	On upper extremity; 12 through naked skin; several very deep involving muscle.	Severe
3	M	13	M	3	On face; 1 over L. parotid; 1 extending 4 cm. from corner of mouth; 1 through lower lip.	Severe
4	F	25	M	2	On R. hand; 1 on dorsal; 1 on palmar aspect; both very deep involving bone.	Severe
5	M	60	M	7	1 on R. cheek 4 cm. long down to muscle; 2 on thumb penetrating all structures; 4 on L. arm deep and 3 cm. long through naked skin; compound fracture of L. radius.	Severe
6	M	25	M	11	7 on face; 2 involving lip and R. eyelid; 4 on R. hand down to muscle.	Severe
7	F	20	F	2	Both on face through superficial structure of cheek.	Moderate
8	M	9	F	5	1 on face through cheek; 4 on lower extremity through naked skin.	Severe

None cauterised within 2 hours of the biting. Anti-rabies vaccination proved successful in each case, all eight bitten persons, treated in the ordinary way with a total dosage of 0.7 grammes carbolised rabid nerve substance, being alive and well one year after completion of the 14 days' course.

Laboratory diagnosis of rabies was, unfortunately, impossible in respect of the male wolf, for, according to a local superstition, immunity against hydrophobia can only be secured by removal and destruction of the biting animal's head and these customs had been duly observed before the arrival of the investigating veterinary officer. The veterinary officer's visit, however, prevented a repetition of the customary rites in the case of the female wolf, with the result that the head arrived for laboratory investigation on the same day as that on which the second attack on the settlement had been made. Histological examination of the hippocampus major showed, with Mann's stain, Negri bodies to be present in large number in the pyramidal cells. Further subdural inoculation of rabbits with emulsions of the brain first produced typical symptoms in 10 days and caused death in 12. That both wolves, however, were rabid at the time of biting, is abundantly proved by their association and behaviour.

(d) **Occurrence of Rabies in Animals.**

51 cases of rabies occurred among animals during 1930 and their particulars were recorded in the monthly Veterinary Bulletins. The month of greatest incidence was June with 11 cases (22 per cent). The animals affected were 31 dogs, 10 cats, 4 donkeys, 2 jackals, 2 horses, 1 wolf and 1 cow. As has already been observed 64 brains were extracted from animals suspected of rabies and forwarded for diagnosis to the Central Laboratories. Of the total number submitted Negri bodies were demonstrated in 32 cases while a positive diagnosis was established in 15 cases out of the 21 when the biological test was applied. It will be understood that these cases of rabies have no connexion with the anti-rabies statistics previously given in this report in which the biting animals suspected of rabies have been correctly classified.

(e) **Canine Prophylactic.**

No considerable advantage has been taken of the canine prophylactic prepared in these laboratories since 1927. In as much as it had been shown that certain carbolised vaccines used in prophylaxis had actually conveyed the disease itself instead of affording protection, experiments were carried out here in 1927 to determine the time of exposure to 37°C. required by a 20 per cent suspension of fixed virus brain in 1 per cent phenol before infectivity is wholly lost. The results of these experiments published by Stuart and Krikorian in the Journal of Hygiene, Vol. XXIX, No. 1, 30th April, 1929, went to prove that a 20 per cent emulsion of fixed virus in 1 per cent phenol can be rendered avirulent by exposure to 37°C. for not less than 144 hours.

5. The Calf Lymph Establishment.

(a) **General.**

The failure of a locally-produced calf lymph to control a somewhat serious outbreak during 1922 had compelled the importation from Egypt of an excellent, if expensive, vaccine and the desirability of a Government Lymph Establishment for Palestine had to be considered at an early date. It is indisputable that the importation of lymph is not only an uneconomic proposition in any country where suitable vaccinifers are easily obtainable at reasonable cost but often entails considerable loss of potency during transit. Since calves, best of all vaccinifers, are readily and cheaply procurable in Palestine and since the Department of Health continued to press for sanction to manufacture its own requirements of calf lymph, Government agreed to the erection of the premises and to the purchase of equipment necessary to carry out the undertaking.

The Calf Lymph Establishment, opened in 1924 as an extension of the Central Laboratories and staffed by the then existing personnel of the Bacteriological Division, rendered the country, at small cost, independent of outside sources of supply. It was believed that the greatest liklihood of success in achieving a lymph stock of the desired potency would result in intensive production during the cool period of the year, January — April, and experience has shown that the work performed during that time assures a supply ample for the needs, routine and epidemic, of Palestine and Trans-Jordan. Indeed, the stock of 500,000 doses kept in reserve against unforeseen developments, has been called upon by the International Quarantine Board of Egypt and by the Syrian Government, when their own ordinary sources of supply have failed.

(b) **Tests for Potency.**

Each batch of vaccine lymph, after the several procedures required for preparing it for issue have been completed, is tested for potency, so as to ensure its full activity at the time of issue. Potency is gauged in the first instance by the production of the characteristic lesions of vaccinia virus on application of the vaccine in dilutions varying between 1 : 10 and 1 : 10,000 to the rabbit's skin. Tests on children, however, are also carried out before issue. Dilutions in this case are restricted to 1 : 100 and these control vaccinations prove the lymph to have an efficiency value of 99 to 100 per cent prior to distribution.

(c) **Results.**

It is not to be inferred that the original high success-rate of insertions is maintained in rural districts, but this can occasion no surprise when the adverse conditions, under which many vaccinators have to work while on tour, are taken into consideration. The most practical method of ensuring the arrival of lymph undiminished in potency at outlying stations during the hot weather has proved to be the surrounding of lymph tubes by cotton wool thoroughly saturated with water and packing them in boxes of which the lid and sides are freely perforated. It has been found that the tubes are kept quite cool by the evaporation of the moisture, the hotter and drier the air, the cooler the tubes,

Perhaps the quality of the lymph on arrival at its numerous destinations may best be appreciated by reference to the following general statement which covers the last quinquennium.

Year.	Total number of vaccinations performed.	Primary Vaccinations.		
		Number performed and observed	Number successful.	Percentage of success.
1925	76,423	31,140	28,561	81.3
1926	171,261	69,965	60,760	86.8
1927	89,600	37,280	32,869	88.2
1928	98,572	51,287	44,106	86.0
1929	45,970	38,158	36,016	94.6

During 1930 the percentage of successful insertions among primary vaccinations was 93.8, i. e. 37,898 among 40,395.

(d) **Cost of Production.**

The production of small pox lymph has entailed no extra expenditure here on laboratory personnel, for it has already been recorded that such production was undertaken, since the inception of the Establishment in 1924, by the staff of the bacteriological laboratory as part of their routine duties. The economic advantages to Government of such production at the Central Laboratories will become apparent from the fact that during the period January to March 1930 the Calf Lymph Establishment manufactured 374,200 doses of vaccine at a net expenditure over revenue of £. 74.14s. The following summary explains the low cost:

Number of calves vaccinated	47
Number of grammes of pulp collected.	1,871
Average number of grammes per calf.	40
Number of doses manufactured	374,200
Purchase price of 47 calves	£. 142.16s.
Cost of forage etc.	£. 47.10s.
Slaughter house dues.	£. 7.18s.
Sale price of 47 calves, meat and skins.	£. 123.10s.
Net expenditure over revenue.	£, 74.14s.
Cost of lymph production per dose manufactured.	0.048d.

No case of small pox has occurred in Palestine for over three years despite the presence on all land frontiers of the disease in epidemic form. No unfortunate sequelae to vaccination have been observed, such as abscess formation or encephalitis.

6. Vaccines and Sera.

(a) Vaccines.

The bacteriological staff again undertook the preparation of all other prophylactic and curative vaccines required in Palestine. During the summer months the occurrence, in certain areas of Jewish settlement, of an epidemic due to Bact. typhosum and to paratyphosum A and B required the manufacture and issue of large quantities of T.A.B. In two months vaccine amounting to nearly 50,000 doses was distributed to the principal centres of infection and this work, which necessitated the staffs' attendance at the laboratory for over 12 hours daily, was carried out successfully without any increase in personnel. In addition an intensive vaccination campaign was launched in areas bordering on the epidemic centres. Fortunately the epidemic was soon brought to an end and it is impossible to overlook the part played by the laboratory service in achieving this desirable result. The value of the T.A.B. vaccine used in Palestine is held to be largely due to the extraordinary stability of the strains employed in anti-enterica prophylaxis. A lack of tendency on their part to become "rough" explains their value in vaccine therapy.

While the anti-enterica vaccines were also used as routine in the protection of immigrants and in the inoculation of case-contacts, anti-cholera vaccine was employed to confer immunity on the Palestinian and Trans-Jordan contingents of the Mecca Pilgrimage.

The vaccine work carried out during 1930 is summarised as follows: —

Nature of Vaccine.	Total dosage manufactured.	Total dosage issued.
Small-pox lymph.	374,200	112,815
Anti-rabies vaccine.	109,680	100,620
Anti-typhoid.	33,565	13,565
T. A. B. prophylactic.	52,560	38,190
Anti-cholera.	4,500	2,390
Anti Plague.	1,500	555
Autogenous.	7,080	7,080
Total	583,085	275,215

The autogenous vaccines were prepared in respect of persons suffering mainly from furunculosis, genito-urinary diseases and acne.

(b) Sera.

The various agglutinating, haemolytic and precipitating sera used in ordinary diagnosis, in the Wassermann reaction, and in medico-legal cases were mostly prepared in the Central Laboratories. Large quantities, also, of Groups II and III sera were taken from volunteers and tubed for future use in the grouping of donors in blood transfusion.

7. Research.

Experiments were carried out on a considerable scale to determine the rate of elimination of extraneous organisms during the cold storage of calf-lymph at-5°C. and to investigate the keeping properties of vaccinia virus at that temperature. To put the main results in brief: it was found that with an average initial flora of from 30 to 40 millions of colonies per 1 c. c. lymph is rendered sterile in 23 days at room temperature (18°C.), in 15 weeks at the temperature of cold storage-5°C. and in 4 days at incubator temperature (37°C.). The lymph virus, however, retains its potency after 7 weeks' exposure to 18°C.; after 2½ years in cold storage its virulence is inappreciably affected, while lymph is rendered wholly avirulent after one week at 37°C.

Actual rate of elimination of extraneous organisms during storage at -5°C. may be tabulated as under;

After storage period of	Number of colonies per 1 c. c.	After storage period of	Number of colonies per 1 c. c.
1 week	2,824,000	8 weeks	34,000
2 weeks	463,000	9 "	20,000
3 "	344,000	10 "	12,000
4 "	256,000	11 "	8,000
5 "	168,000	12 "	1,950
6 "	80,000	13 "	1,300
7 "	60,000	14 "	1,000 to Nil.

The whole subject of calf lymph production and of antivariolous procedure is discussed in "Anti-Variolous ,Measures in Palestine" by Stuart and Krikorian, Ann. Trop. Med. and Parasitol. Vol. XXIV, No. 4 Dec. 18th, 1930.

Research was, as in former years, mainly carried out on rabies problems connected with immunisation. Thus the occurrence early in 1930 of a fatal case of neuro-paralytic accident following anti-rabies treatment afforded an opportunity of reviewing the question of etiology which had been discussed at great length under the title of "The Neuro-Paralytic Accidents of Anti-Rabies Treatment" by Stuart and Krikorian in the Ann. Trop. Med. and Parasitol. Vol. XXII, p. 327, 1928. The resume was given in The Lancet, May 24th, 1930 p. 1123.

Further studies in anti-rabies immunisation now nearing completion are:

(a) Exalted and classical strains of rabies virus compared. In this work the chief characteristics of virus de rue renforcé have been considered, viz., incubation time, fixation rate and occurrence of Negri bodies. Cross-immunity experiments have been performed and as a result of cross-protection tests and of crossed serum reactions it would seem that identity of exalted virus with classical strains has been established. Further, from this enquiry, it can be shown whether or not the suggested employment of autogenous and polyvalent vaccines is an unnecessary complication of anti-rabies treatment.

(b) Efficacy of carbolised virus in the treatment of wolf-bite. Here proof has been advanced that carbolised killed fixed virus in a total dosage of 0.7 grammes administered intracutaneously over 14 consecutive days affords adequate protection in the case of human beings seriously wounded by rabid wolves. From the experiments conducted in connexion with the cases treated there emerged an interesting finding; anti-rabies immunity was established at the time when rabicidal antibodies first became demonstrable in the patients' sera.

(c) Appearance and persistence in rabbits' blood of rabicidal antibodies produced by various methods of anti-rabies immunisation. In this investigation, proofs of existence and of specificity of rabicidal antibody having first been afforded, determination was made as to what relation the serum of an animal treated with fresh-fixed virus bears to that of an animal treated with carbolised virus and to that of one treated with etherised virus all in equal amounts. After much experimentation it was concluded that in the immune sera of rabbits treated with killed etherised-fixed virus, rabicidal antibodies make an earlier appearance, are present in greater degree and persist a longer time than in the immune sera of rabbits treated with equal quantities by weight of fresh-fixed virus or of killed carbolised virus.

(d) Rabies v. Typhus. In view of the report made by Bablet and Mesnard (Bull. Soc. Path. Exot. Vol. 20, p. 318, 1927) of a case of typhus simulating rabies, the Colonial Medical Research Council debated at their meeting on Oct. 24th, the question as to whether cases of rabies might themselves occasionally give a positive Weil-Felix reaction and asked whether the investigation could be carried out in Palestine. This work which envisaged, in the absence of human cases of rabies for two years, experimental production in the rabbit and guinea-pig of rabies and typhus — the latter by direct transmission from human cases was bound to take some considerable time. In the first place hydrophobia cases in Palestine occur but rarely and are usually not reported until some days have elapsed since the patient's death and burial, while, in the case of attempted transmission of the mild from of typhus which obtains here, notification is not usually made to the laboratory until the Weil-Felix reaction has become diagnostically positive and by then the period of defervescence has often set in.

These obstacles, however, were ultimately surmounted and a separate report will be made on the results of the experimental work. Here it is sufficient to state that in two cases of hydrophobia, one untreated, the other occurring after treatment, the Weil-Felix reaction was completely negative. It seems probable that any agglutination of the Proteus vulgaris $^{X}19$ in diagnostic dilution by the sera of patients suffering from rabies is of the nature of an anamnestic reaction, especially in view of the fact that during the stage of excitement, the temperature may be elevated to 100°- 103°F.

8. Identification of Anopheline Larvae.

Nine species of *Anopheles* encountered in Palestine were identified during their larval stages as follows: — *Anopheles elutus, A. superpictus, A. sergenti, A. bifurcatus, A. multicolor A. algeriensis, A. hyrcanus, A. pharoensis* and *A. mauritianus* (rarely). Of these only the four first named are proved to be vectors of malaria.

9. Preparation of Spray Insecticides.

During the summer, different methods of extracting pyrethrum flores were employed and several types of spray insecticide tried out in the field and in the home. It was immediately apparent that the strength of paraffin extract sufficient to control adult mosquitoes (6 per cent) was unable to render living rooms fly-proof; this latter required about 10 per cent. The preparation which successfully coped with a threatened malaria epidemic at Wadi Rubin during September, when the annual Moslem Festival of nearly a month's duration was held, was made according to the following formula: — To 4.5 litres of paraffin add 250 grammes pyrethrum flores; allow contact for 24 hours with occasional shaking; now add 30 grammes camphor and place in a mechanical shaker for 2 hours; filter; to the clear filtrate add 100 c. c. methyl salicylate.

TABLE I.

RECORD OF BACTERIOLOGICAL EXAMINATIONS PERFORMED DURING 1930

Nature of Specimens.	Total Examinations.	Nature and Number of Positive Findings.	
Blood Films	11,430	P. vivax	1153
		P. malariae	13
		P. falciparum	308
		Sp. recurrentis	19
Blood Cultures	2561	Bact. typhosum	75
		Bact. paratyphosum B	3
		S. pyogenes	10
		Br. melitensis	9
		Str. pneumoniae	7
Histological Sections	120	Negri bodies	32
		New growths	43
Water Analysis	930	—	—
Milk Analysis	602	—	—
Serum Reactions			
(a) Agglutinations	8967	Bact. typhosum	682
		Bact. paratyphosum A	30
		Bact. paratyphosum B	195
		Br. melitensis	27
		Prot. vulgaris x19	51
(b) Diagnosis of Syphilis	4470	Wassermann Reactions	936
(c) Precipitin Reaction	100	Kahn's Test	56
(d) Isohaemagglutination	251		
Sputa	2620	Myco. tuberculosis	593
		Str. pneumoniae	30
Rats for plague	686	B. pestis	0
Pharyngeal Swabs, including Naso-pharyngeal and nasal	3691	C. diphtheriae	271
		Myco. leprae	11
		Vincent's angina	77
Faeces			
(a) Microscopic Examination	12,768	E. histolytica (free)	375
		E. histolytica (cyst)	225
		Giardia intestinalis	525
		Chilomastix Mesnili	60
		Trichomonas intestinalis	557
		WORM OVA:	
		Ascaris lumbricoides	606
		Trichuris trichiura	835
		Enterobius vermicularis	34
		A. duodenale	25
		S. mansoni	7
		T. saginata	196
		Hymenolepis nana	110
		Heterophyes heterophyes	33
		Dibothriocephalus latus	2
(b) Cultural Examinatiion	8516	Bact. typhosum	34
		Bact. paratyphosum A	1
		Bact. paratyphosum B	1
		Bact. dysenteriae Shiga	56
		Bact. dysenteriae Flexner-Y	216
		Bact. dysenteriae Strong	5
Urines			
(a) Microscopic	16,759	S. haematobium	15
(b) Bacteriological	2483	Bact. typhosum	7
		Bact. coli	66
(c) Chemical	21,206	Bact. coli communior	12

Nature of Specimens	Total Examinations	Nature and Number of Positive Findings	
Rabies			
(a) Microscopic Examination	64	Negri bodies	32
(b) Biological Tests.	21	Positive.	15
Urethral Smears	590	N. Gonorrhoeae	123
TRANSUDATES AND EXUDATES			
(a) Abscess pus	771		
(b) Conjunctival exudates	193	Haem. Koch-Weeks	68
		Haem. lacunatus	21
(c) Cyst fluids	55		
(d) Lumbar puncture	149	N. meningitidis	2
		Str. pneumoniae	9
		Str. pyogenes	11
		Mycobact. tuberculosis	3
		Staphylococcus	6
(e) Syphilitic	5	Spironema pallidum	5
Shaving brushes for Anthrax	273	B. anthracis	0
Other Examinations etc.			
Auto-vaccines	236		
Gastric juice	205		
Smears	250	L. tropica	20
Hair	450	Trichophyton	137
		Favus	29
Seminal fluid	34	Living spermatozoa	6
Stools for occult blood	37	Blood	21
Tests for blood: spectroscopic	803		

TABLE II.

LABORATORY FINDINGS IN MALARIA - 1930.

From 11430 Examinations.

Type and Locality.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Yearly
BENIGN TERTIAN MALARIA														
Jerusalem	6	17	18	13	22	13	35	19	68	45	4	4	264	
Jaffa	30	29	37	28	26	25	39	15	12	4	7	13	265	
Haifa	23	34	60	48	27	24	46	38	12	9	23	8	352	
Safad	9	19	11	9	4	10	9	2	5	2	3	0	83	
Total recorded	68	99	126	98	79	72	129	74	97	60	37	25	Total	964
MALIGNANT TERTIAN MALARIA														
Jerusalem	4	2	2	0	0	4	9	5	31	34	3	12	106	
Jaffa	4	0	2	0	0	0	0	2	1	0	3	3	15	
Haifa	12	1	9	3	0	8	8	12	16	4	6	10	89	
Safad	8	2	4	1	2	5	7	6	7	4	5	0	51	
Total recorded	28	5	17	4	2	17	24	25	55	42	17	25	Total	261
QUARTAN MALARIA														
Jerusalem	0	0	0	0	1	0	0	0	0	0	0	0	1	
Jaffa	1	0	0	0	0	0	0	0	0	0	0	0	1	
Haifa	1	1	0	0	0	0	0	0	0	0	0	0	2	
Safad	1	1	0	0	0	0	0	0	0	0	0	0	2	
Total recorded	3	2	0	0	1	0	0	0	0	0	0	0	Total	6
Total Monthly Findings (all forms)	99	106	143	102	82	89	153	99	152	102	54	50	Yearly	1231

TABLE III.

ANTIRABIC INSTITUTE STATISTICS

January 1st to December 31st, 1930.

Number of bitten persons treated at the 16 Anti-Rabies Centres	1250
Number of interrupted or unnecessary courses of treatment — biting animals remaining well after a period of 10 days' observation	499
Number of treatments carried out regularly and completely	751
Cases of hydrophobia occurring after 15 days of the completion of treatment i. e. failures.	1
Cases of hydrophobia occurring during treatment or within 15 days of its completion.	2
Total mortality rate; calculated on all deaths among patients who ran definite risk of infection.	0.4
Failure rate (conventional)	0.13

(2) Classification of bitten persons according to species of biting animal:—

Dog:	918	Ruminants:	58
Cat:	185	Wolf:	9
Jackal:	15	Other animals:	65

(3) Classification according to the condition of the biting animal:—

Rabid by laboratory tests	84
Rabid clinically	61
Suspected of rabies by altered behaviour	225
Unknown (no information available)	381
Healthy (after 10 days' observation)	499

(4) Classification according to location of bite:—

Head and Face	84
Upper Extremity	528
Lower Extremity	588
Body	50

(5) Classification according to severity of bite:—

Severe	256
Slight	994

(6) Interposition of clothing:—

On naked skin	824
Through clothing	426

(7) Whether or not cauterized within 1/2 hour of bite:—

Cauterized	27
Not cauterized	1223

(8) Number of days after bite or contact when treatment was begun:

0 — 4.	1129
5 — 7.	76
8 — 14.	35
15 — 21.	7
Over 21.	3

(9) Occurrence of paralytic accident during the year:—

(See Lancet 1930 p. 1123 where this case and neuro-paralytic accidents in general is discussed by Stuart and Krikorian).

TABLE IV.

YEARLY STATEMENT OF RABIES AND ITS CONTROL IN PALESTINE DURING 1930.

Centre for Treatment.	Bitten Persons	Biting animals.																											
		Specification.													Condition.					Disposal.									
															Definitely rabid					Killed				Ran away				Kept under observation	
	Number actually treated.	Wolves.	Cats.	Dogs.	Rabbits.	Jackals.	Horses.	Donkeys.	Camels.	Weasel.	Cows.	Rats.	Unknown.	Total number of animals.	By laboratory investigation.	Clinically	Suspected rabid	Healthy	No information available	Rabid	Suspected	Healthy	No information available	Rabid	Suspected	Healthy	No information available	Died within 10 days	Remained healthy
Jerusalem	211	2	35	149	2	1	6	3	2	1	—	1	—	202	10	2	12	99	79	12	10	—	—	—	—	—	79	2	99
Jaffa	328	—	42	224	1	—	9	1	2	—	—	8	—	287	10	3	15	144	115	12	13	—	—	1	—	—	115	2	144
Haifa	161	—	23	118	—	—	2	—	1	—	—	13	—	157	—	1	7	67	82	1	4	—	—	—	1	—	82	2	67
Ramleh	94	—	7	62	—	1	—	2	1	—	—	—	2	75	1	3	9	5	57	3	5	—	—	1	4	—	57	—	5
Tulkarem	16	—	—	8	—	—	—	—	—	—	1	—	—	9	—	—	3	2	4	—	1	—	—	—	1	—	4	1	2
Nablus	66	—	3	44	—	—	1	2	—	—	—	—	—	50	2	1	5	29	13	3	4	—	—	—	1	—	13	—	29
Gaza	66	—	4	28	—	1	—	2	—	—	—	—	1	36	7	—	3	6	20	7	3	—	—	—	—	—	20	—	6
Tiberias	60	—	4	38	—	—	7	1	—	—	—	5	1	56	3	—	4	26	23	2	3	—	—	—	—	—	23	2	26
Hebron	16	—	—	5	—	—	—	—	—	—	1	—	2	8	—	3	2	—	3	2	1	—	—	—	—	—	3	2	—
Hedera	24	—	6	7	—	—	—	—	—	—	—	—	—	13	—	1	1	7	4	1	1	—	—	—	—	—	4	—	7
Rehovot	24	—	—	13	—	—	—	—	—	—	—	1	—	14	—	—	2	5	7	—	1	—	—	—	1	—	7	—	5
Petah-Tiqva	48	—	19	22	—	—	—	3	—	—	—	3	—	47	2	1	2	17	25	2	2	—	—	1	—	—	25	—	17
Affula	4	—	—	2	—	—	1	—	—	—	—	1	—	4	—	—	1	1	2	—	1	—	—	—	—	—	2	—	1
Kfar-Saba	9	—	1	7	—	—	1	—	—	—	—	—	—	9	—	—	1	6	2	—	1	—	—	—	—	—	2	—	6
Tel-Aviv	85	—	14	51	—	2	1	1	—	—	—	9	2	80	—	—	8	39	33	—	2	—	—	—	—	—	33	6	39
Safad	38	—	4	25	—	3	1	—	—	—	—	1	—	34	2	—	2	10	20	2	2	—	—	—	—	—	20	—	10
TOTAL	1250	2	162	803	3	8	29	15	6	1	2	42	8	1081	37	15	77	463	489	47	54	—	—	3	8	—	489	17	463

B. CHEMICAL DIVISION.

1. Summary of Work Done.

A total of 6359 samples has been examined in 1930 compared with 6388 in 1929 and 1517 in 1921 (see table A). In the past decade (see table C) a total of 49,598 samples was examined.

The number of samples examined represents only a portion of the services rendered since much of the Analyst's time is given to work of an advisory nature.

2. Notes on the Various Branches of Work Undertaken.

FOOD AND DRUGS.

(a) Milk.

The scheme of decentralised examination put into operation in 1922 has with occasional hitches given good results. Based on a somewhat low standard of 3% fat and 8% non-fatty solids the number of prosecutions in 1922 was 9.4% of the samples and in 1930 2.9%, the average being 4.9% for the past ten years during which period 33,886 samples were examined. Some of this decrease should no doubt be ascribed to an increase in subterfuge on the part of the vendor helped no doubt by the common tendency to take samples at fixed times. A difficulty met with is the fact that much of the milk sold by street vendors is from individual animals and very small herds of three or four cows or is the mixed milk of cows, goats and sheep.

(b) Edible Oils and Fats.

Staple foods under this heading most liable to adulteration are semneh (and butter), olive oil and sesame oil, the figures for which are as follows:—

	Samples examined.			Percentage adulterated.		
	1929	1930	1921-30	1929	1930	1921-30
Semneh and butter.	120	134	1221	20.8	2.2	24.1
Olive oil.	45	44	394	13.3	2.3	11.1
Sesame oil.	10	20	363	0.	0.	19.2

Time will show whether low figures for adulteration in 1930 are merely a reflection of a fall in prices. Semneh should be a pure rendered butter fat; much of that on the market is imported from Syria.

A high Polensky figure is not necessarily an indication of adulteration as it may be due to the presence of goat butter (Atkinson — Analyst 1928, 520). At the time of writing there is a Custom duty on "mixed" (adulterated) semneh but none on pure semneh of Syrian origin and this has involved the examination of samples from every consignment. As a sorting test in this connection, use has been found for the ultraviolet lamp. Incidentally, it has been found that the yellow fluorescence of milk is apparently not due to the fat as suggested by Popp (Analyst 1926, 540). This is being investigated further.

The position with regard to olive oil mentioned in the 1929 report has now changed. The import of unrefined olive oil is restricted to such quantities of virgin oil as are required for blending.

The usual adulterant of olive oil is cotton seed oil. Sesame oil, soya bean oil, and refined mineral oil have also been used. Coloured mineral oil and soya bean oil have been imported for "blending" with olive oil and there has been a recent attempt to obtain customs exemption to facilitate the use of nut oil for the same purpose.

(c) Government Food Contracts.

The food supplies for Government hospitals and the Department of Police and Prisons are arranged by annual contracts. Complaints resulting in requests for analysis are not infrequent and in the past the analysis has often been vitiated by the absence of standards or specifications. The 1931 contracts, however, were subject to laboratory examination of the tendered samples which should facilitate control over the quality of the deliveries.

In this connection 32 samples of food were examined for the Central Tenders Board. Many of these were found to be of unsatisfactory quality. A sample of mustard was rejected as it contained only 8% of oil and consisted largely of starch coloured with tumeric, the mustard flavour being almost absent.

(d) **Non-alcoholic Beverages.**

The use of tin piping in the place of lead in soda water factories and street fountains is now general and has eliminated the serious lead contamination first noted in 1921.

Unfermented grape juice, lemon squash, and orange squash of good quality are now manufactured from local fruit for home consumption and export.

(e) **Alcohol.**

The position with regard to alcoholic liquors has improved considerably during the past decade. Investigations instigated by the Government Analyst in 1922 and continued in 1923 revealed the fact that the market was flooded with spurious liquors made by the "cold process" from imported alcohol, to the prejudice of the consumer and the genuine local industry.

The improvement is largely due to the partial denaturing of imported alcohol, the addition of essence of cognac, essence of whisky and similar articles to the list of prohibited imports, and excise control under the Intoxicating Liquors Ordinance 1927-30.

That Ordinance specifies that "Arak" is spirits made from fruit and the anise plant by distillation. Cognac includes brandy and means spirits distilled from the fermented juice of grapes. Wine means any fermented liquor made from the juice of fresh grapes. Molasses and grain alcohols pay a higher duty than other spirits. After the 1931 vintage, grape alcohol alone is to be used for the fortification of sweet wines.

The addition of sugar other than that of the grape to wine is not permitted and in connection with an allegation that the addition of sugar was necessary to the manufacture of sweet wine in this country, samples of grapes were submitted by the Director of Agriculture. The sugar content of the juice ranged from 21 to 33%.

Under the Ordinance, the Tralles alcoholometer is the official instrument (after verification by the Government Analyst) and the excise duty is based upon the alcoholic content. In order to cope with the large number of samples following each vintage season it has been necessary to adopt a method which does not necessitate the use of a pyconometer or the distilllation of a volume large enough to float an alcoholometer. In practice, therefore, a dipping refractometer is used.

During 1930, the samples of wine and spirits examined for excise purposes in these laboratories numbered 1083.

CRIMINAL INVESTIGATION.

(a) **General Considerations.**

Endeavour has been made to keep abreast with recent developments in the application of science to the investigation of crime and to encourage the police and others concerned to make intelligent use of the services of these laboratories.

The importance of correct procedure in the collection, despatch, and receipt of specimens and exhibits has been repeatedly emphasized. Detailed instructions on these points have been issued and for some years past the use of special proformae to accompany specimens has been insisted upon.

Experience has shown that it is generally unwise either to reject a specimen or start an examination without information as to the nature and main facts and circumstances of the crime and how the specimens are related thereto.

Photography now forms an important part of this branch of work and special equipment has been constructed and purchased to deal with the problems which arise in this connection. The fact that the best known laboratory furnishers list very few accessories for this work, is an inconvenience.

A roomy well ventilated dark room was found to be the first essential. For the routine photography of documents, labels and other exhibits up to natural size with the minimum of trouble, a special cabinet has been constructed. An opening in the top of this cabinet takes a folding hand camera resting vertically. The object is placed upon a moveable platform in the cabinet in which electric illumination is arranged. The exposure is controlled by the light switch and averages 30 seconds.

For the examination and photography of special detail, a camera having a 36" extension on an optical bench with lenses of 10, 6, 4 and 2 1/2 inch focus giving magnification up to about 12 diametres is found useful. With a small arc lamp brilliant illumination at any desired angle can be arranged to show up the slightest variations in contour.

The Leitz micro-camera attachment has done all the micro-photography required. The side tube is a great convenience and it is noted that similar cameras of British make are now available. Used in conjunction with an Osborn's comparison microscope, this camera has been very useful for the comparison and photography of microscopic features on such exhibits as cartridge cases.

A difficulty met when taking comparison photographs on one plate of firing pin impressions in brass cartridge cases has been a difference in tint or degree of polish which complicates comparison and influences the exposure to be given. This has been overcome to some extent by using two independent sources of illumination and varying the intensity to compensate for differences in reflecting power of the object. Backed plates are used.

New uses are continually being found for one of Kelvin Bottomley & Bairds' quartz mercury vapour lamps (see also para 2 (b) above), and it has many known and unexplored possibilities in criminal investigation. The interpretation of results especially in this branch must depend largely upon experience and the facilities for carrying out adequate control tests and experiments in conjunction with other methods of examination.

X-Ray photography has been found useful to examine the internal structure of bullets without mutilation of the exhibits. In one murder case, the character of the nose filling of bullets as shown by X-Ray provided important evidence.

(b) **The Scope of Work Undertaken.**

The 1184 specimens and exhibits examined under this head in the past decade may be classified as follows:-

Type of crime.	Type of Specimen.	Number of specimens examined.
Poisoning.	Viscera, vomit, food, drugs, clothing.	413.
Shooting.	Firearms, projectiles, cartridge cases, clothing.	39.
Counterfeiting.	Coins, alloys, moulds etc.	227.
Forgery.	Documents, banknotes, passports.	26.
Burglary and theft.	Locks, bars, keys, stains, clothing etc.	36.
Arson.	Burnt material, paper, rags etc.	9.
Drug trafficking.	Drugs and suspected material.	118.
Tree cutting.	Saws and pieces of wood.	47.
Not stated.	Miscellaneous.	269.

The following notes deal with some of these groups in detail. (For blood stains see Bacteriological Division).

(c) **Poisoning.**

The positive findings during the past decade are classified below. In many cases where post-mortem specimens are submitted for analysis, there is considerable evidence in favour of death from natural causes and nothing but village rumours to suggest poisoning.

Human Poisoning:— Arsenic 15, Mercury 7, Datura seeds 2, Opium 1, Veronal 1, Chloral hydrate 1, Elaterine 1, Sulphuretted hydrogen 1, Hydrogen cyanide 1, Carbon monoxide 4, Alcohol 2, Phenol 1, Zinc Sulphate 1, Sodium Nitrite 1.

Animal Poisoning:— Arsenic 72, Mercury 5, Strychnine 2.

It will be seen that both for human and animal poisoning, arsenic is the most popular agent, no doubt on account of its freedom from taste and the comparative ease with which it is obtained.

In the anti-locust campaign of 1930, poison bait made of bran and sodium arsenite was distributed over large areas especially in the Beersheba district. The question then arose as to whether there was any danger of contamination of water supplies collected from those areas during the rainy season. Arrangements were, therefore, made for the examination of samples taken after the first heavy rains. A sample of dead locusts and debris from a poisoned area was also examined. Of the 15 samples of water examined, one contained 0.2, one 0.1 and the rest less than 0.1 parts per million, while the locusts debris contained 0.05% As_2O_3.

There is no doubt that many goats were poisoned by feeding in the affected areas, but no case of human poisoning from locust bait came to the notice of these Laboratories.

In cases of criminal poisoning, the arsenic is more often than not given in the form of artificial sulphide which depends for its poisonous properties upon the amount of white arsenic it contains. Several specimens examined contained about 50% As_2O_3. In conjunction with lime this sulphide is used to make a depilatory preparation and for that reason no doubt it is often at hand when there is any poisoning to be done. It is supposed that the natural sulphides owing to their insolubility are comparatively non-toxic, and this is supported by tests made in these laboratories on rats.

Mercury is often administered as the oxide which apparently has other domestic uses. Datura seeds obtained from the local thorn apple are generally crushed and inserted into figs. They are used as a narcotic to facilitate robbery.

During 1930, human viscera were examined in 12 cases of suspected poisoning. The positive findings were Arsenic 2, Mercury 1, and hydrogen cyanide 1. During the same period, the total number of specimens examined in connection with cases of suspected poisoning were Human 49, Animal 99.

In one case in which the Asst. Analyst was called to give evidence, traces of sulphide of arsenic had been found in the dust in the seams of the accused's pocket and 17.37 milligrammes of arsenic were found in 1880 grammes of viscera of the deceased. Most of this arsenic was found in the liver.

(d) Firearms and Projectiles.

An interesting case occurred in 1929 in which it was found possible to prove conclusively that a certain cartridge case found on the scene of the crime had been fired in the accused's rifle. A paper on this case was read at a meeting of the Society of Public Analysts in October, 1930 (See Analyst 1930, pp. 738—744).

It has now been arranged that all such exhibits shall in the first place be dealt with by the Police Armourer, so that only those exhibits requiring an examination outside the scope of the Armourer will be submitted to these Laboratories.

(e) Arson.

On two occasions kerosene was detected and extracted from burnt debris from shop fires. Experiments have shown that by the steam distillation of 200 grammes of material, the presence of 0.2% of kerosene can be detected. In many cases, of course, the presence of traces of kerosene may be of no significance.

In one case it was demonstrated by experiment that a lamp placed in a certain position could not have been the cause of a fire.

(f) Counterfeit Coins.

The present Palestine currency was introduced into circulation in November 1927, and in January 1928 counterfeits of the new currency were submitted to these laboratories for examination. In all 40 coins were examined during that year of which 34 were confirmed to be counterfeit. Very few have been submitted since.

The most obvious fault in the cast coins has generally been found in the milling. There is often at one place on the circumference of the coin either a blank in the milling or file marks in the place of the cast milling. It is assumed that this is the place where the "tail" has been removed and that it represents the point on the circumference where the metal entered the mould. It has been noted that the position of the orifice in the mould (as indicated on the milling) in relation to the inscription is often the same on several coins. This may perhaps point to a common origin.

Note:— In the paragraph on coins in the 1929 Report 57% silver should be corrected to read 83%).

(g) Questioned Documents.

Documents have not infrequently been submitted during 1930 with a request for an opinion as to the age of the writing, but generally speaking, conditions have been unfavourable to any useful opinion being given. In one case where two documents were alleged to have been written at the same time, it was possible to produce evidence to the contrary.

A bundle of burnt currency notes was submitted for identification. By careful treatment in a fluid medium, it was possible to affect the separation of some of the notes and to decipher parts of the inscriptions and in some instances the numbers.

The examination of a rubber stamp impression on a forged passport has suggested that in this connection the detection of forgery would be greatly facilitated if every rubber stamp in use by Government could be distinguished by a number or other mark.

3. Minerals, Waters, Ores, Mineral oils.

Tunnelling into the rock has up-to-date reduced the salinity of the Ain Saadeh water from 90 to 40 parts chlorine per 100,000 as judged by the samples submitted by the Geological Adviser.

Corrosion of boiler tubes is a serious problem for the Railways and in this connection samples from all their supplies are examined from time to time. Samples have lately been examined for the Haifa Harbour Works and the Haifa-Baghdad Railway Survey.

The hot springs at Tiberias and El Hamme are of interest. The El Hamme waters are potable and contain up to 0.7 parts of sulphuretted hydrogen per 100,000. The Tiberias springs are strongly saline and contain only traces of sulphuretted hydrogen.

The following data illustrate these points of difference: —

	Tiberias main spring	El Hamme main spring
	Parts per 100,000	
Chlorides (calculated as Chlorine)	1930	40
Total solids (dried at 140°C.).	3220	110
Sulphuretted hydrogen.	0.07	0.75
Temperature at spring head.	60°C.	47°C.

Samples of soap, lubricating oil, motor spirit, kerosene and bituminous preparations have been examined for the Public Works Department and Central Tenders Board. In this connection 69 samples were examined in relation to the 1931 Government contracts.

4. Work for the Department of Customs, Excise & Trade.

In addition to the analysis of alcoholic liquors for excise purposes under the Intoxicating Liquors Ordinance, much work is undertaken for the Department of Customs, Excise and Trade a good deal of which is of an advisory nature.

The Duties Exemption Ordinance and the Palestine-Syria Agreement are responsible for the examination of a large number of samples of which a large proportion are oils and fats. In this connection, Syrian semneh is at the time of writing being submitted at the rate of 100 samples per month. Acid oils for soap-making continue to be submitted in large numbers.

5. Biochemical Work.

The demand for chemical examination of blood, urine and other specimens as an aid to diagnosis is increassing. Some 200 specimens were examined in 1930. With additional staff or a curtailment of other work this branch might continue to be usefully developed.

6. Weights and Measures.

An ordinance to provide for the introduction of a system of metric weights and measures was promulgated in 1928 and in the same year the Government ordered sets of standard weights and measures, but balances, tools and other items of equipment have yet to be obtained.

In 1930, the Government Analyst was appointed Keeper of the Standards under Section 4 (3) of the Ordinance, and a brief survey made by the Analyst and Inspector of Trades and Industries of the conditions obtaining in Jerusalem showed that a very small proportion of traders use the metric system and that the customary weights in use are of every conceivable shape and pattern and often include stones and scrap iron. A primitive form of Municipal control is at present in operation.

It is obvious that the provision of new weights of approved pattern must precede any attempts at verification.

TABLE A.

SAMPLES EXAMINED DURING 1930.

Material	January	February	March	April	May	June	July	August	Sept.	October	Nov.	Dec.	Total
Waters	10	7	11	7	10	10	10	10	18	9	4	13	119
Milks	339	346	363	304	363	326	367	295	219	333	311	299	3865
Alcoholic liquors and foods	62	50	80	32	78	43	48	13	114	191	237	470	1418
Aerated water, cordials, essences	—	7	11	5	—	11	6	1	2	—	—	—	43
Drugs and Disinfectants	1	5	8	2	—	4	2	2	1	1	1	6	33
Soaps, mineral oils and other commercial products	30	16	24	26	27	25	10	10	58	43	56	81	406
Medico-legal and chemico-legal	7	7	9	9	18	6	8	19	23	5	57	9	251
Ores, minerals and metals	—	7	15	1	14	3	1	—	1	3	6	—	51
Miscellaneous	26	18	23	19	32	10	19	28	16	21	17	18	247
Totals	457	463	544	405	542	438	471	378	452	606	689	896	6359

TABLE B.

MILK ANALYSIS IN THE CENTRAL LABORATORY AND DISTRICTS—1930.

District	Number of samples	Number of prosecutions
Jerusalem		
Hospital Supplies	285)	13
Street Vendors	82)	
Jaffa		
Hospital Supplies	107)	11
Street Vendors	363)	
Ramleh		
Hospital Supplies	14)	5
Street Vendors	206)	
Gaza		
Hospital Supplies	19)	1
Street Vendors	206)	
Tulkarem	293	—
Haifa		
Hospital Supplies	3)	33
Street Vendors	567)	
Acre		
Hospital Supplies	244)	7
Street Vendors	112)	
Nablus		
Hospital Supplies	—)	4
Street Vendors	23)	
Tiberias	202	12
Hebron	14	—
Bethlehem		
Hospital Supplies	91)	8
Street Vendors	188)	
Ramallah	370	9
Beersheba		
Hospital Supplies	269)	—
Street Vendors	35)	
Safad	99	8
Total	3865	111

TABLE C.

SAMPLES EXAMINED DURING THE DECADE 1921—1930.

	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	Totals.
Waters	381	39	72	192	360	455	246	186	172	119	2222
Milks	679	3120	3497	3103	3990	3800	3807	4133	3892	3865	33886
Alcoholic Liquors and Foods	80	83	102	365	374	479	786	1588	1388	1418	6663
Aerated waters, Cordials and Essences	95	75	74	175	334	223	218	185	22	43	1444
Drugs and Disinfectants	45	76	98	67	111	106	97	86	23	33	742
Soaps, Mineral Oils, and other commercial Products	27	50	41	22	50	133	113	177	462	406	1481
Medico-legal and Chemico-legal	49	74	100	56	156	112	87	164	209	177	1184
Ores, Minerals and Metals	26	22	56	65	46	27	69	31	49	51	442
Soils	135	92	88	—	—	—	—	—	—	—	315
Miscellaneous	—	—	48	87	91	190	197	188	171	247	1219
Totals	1517	3631	4176	4132	5512	5525	5620	6738	6388	6359	49598

APPENDIX I.

MALARIA RESEARCH UNIT.

The Malaria Research Unit, during the year under review, controlled the following areas: —

Hedera, Binyamina-Zikhron, Yajur-Jeida, Kinnéret, Aiyelét-Yesud and Metulla in cooperation with Medical Officer, Safad.

Staff:—

Controller, Dr. J. M. Shapiro.

Sub-Inspectors:— Mr. I. Yollos, Mr. M. Turban, Mr. S. Milstein, Mr. I. Medanic.

This being the last year of the existence of the Unit as a separate organization, the activities of the Controller and of the Sanitary Sub-Inspectors were gradually merged with those of the Department of Health.

During the winter months, January and February, experiments were conducted with *A. elutus* as to egg laying at different temperatures. It was found that *A. elutus* collected wild in nature in January laid eggs a few days after being caught when kept at an incubator temperature of 22°C. No blood feeding was given, the mosquitoes were fed on fruit juices. Number of eggs laid was 110—120. The eggs showed floats, slightly different from those shown by *A. sergenti* in the summer. The eggs hatched on third day but died after reaching the first larval stage.

During the last part of February *A. elutus* laid eggs both at room temperature (water temperature 11°C.) and at incubator temperature (water temperature 19°C.) The floats were much larger in the first case, i. e., in those laid at room temperature. The eggs laid at incubator temperature in February hatched on third day and developed to 2nd stage in 15 days. Eggs laid at room temperature hatched out in 10 days.

Experiments were conducted with material prepared by the Department of Health Laboratories for the destruction of adult mosquitoes. The results, which were successful, indicated that that insecticide was more lethal to mosquitoes than preparations on the market.

Breeding of *A. elutus* was noted in lower Galilee as early as February and was general throughout the country in April. *A. superpictus* commenced in March and continued throughout the summer. *A. sergenti* larvae was collected in January and February, evidently hibernating; actual breeding was noted towards the end of May increasing in intensity during June and the subsequent months. Larvae of *A. pharoensis* was found in the Auja area in May. Breeding of *A. multicolor* corresponded approximately with that of *A. superpictus*. *A. hyrcanus* and *A. algeriensis* larvae were found in January and February and throughout the the year.

In 1923, a number of fish-top minnows (Gambusia Affinis) was brought from the United States and an effort made to stock various waters. This was successful in places where there is a continuous supply of fresh water and now they exist in large numbers in various canals and pools. Experience has shown that these fish, whilst voracious eaters of larvae in conditions of captivity, are of less value in this respect under natural conditions. They cannot be depended upon as a sole measure for antilarval purposes but are a valuable adjunct to other larvicidal measures.

The malaria situation in the controlled areas was satisfactory, there being no marked epidemics. The only exception was in the case of the settlement Ahva, where during July 6 primary cases occurred among a population of 120, although careful search failed to reveal the presence of mosquitoes. These cases were doubtless infected by stray mosquitoes from a neighbouring village in which the examination of 107 blood specimens resulted in 12 positive findings — all gametes.

Hedera — the seat of summer epidemics since its inception, except in years of particularly low rainfall — avoided a considerable epidemic this year through the completion in time of the pumping of the main swamp affecting it — Birket Atta — 2$^{1}/_{2}$ kilometers removed from the colony.

Pumping commenced on 15th February and was completed on June 9th. To obtain the optimum advantage. pumping operations should be completed by the end of April. In 1930 there were 89 primary cases from June to September, inclusive, as compared with 611 in the corresponding period of 1929.

In the area of Benyamina, the canalisation of W. Sindiana was completed thus removing an important source of breeding close to Benyamina. In 1929 the initial work of damming the Zarqa caused extensive breeding but the completion of that and of the work on Wadi Sindiana had a marked influence in the malaria incidence in the colony. Thus in the period June to December, 1930, there were 74 primary cases as compared with 239 in the corresponding period of 1929.

Further improvements were effected by the Palestine Jewish Colonization Association in 1930 in the deepening of Wadi Zarqa with a view to draining Birket Timsah.

In the Kinneret area much labour and expense was saved by substituting the usual methods of control of the eucalyptus swamps by pumping the waters into the Jordan. As usual, a small number of cases of malaria occurred during the summer months, but there was nothing in the nature of an epidemic. Despite the Jordan control during autumn and the partial drying of the swamps, there was the customary autumnal invasion of adult *superpictus, sergenti* and *elutus,* This phenomenon is probably due to a .hibernation extension and invasion from uncontrolled breeding areas outside the area.

Drainage Activities.

The outstanding works of drainage this year were the installation by the Hedera Colony of equipment and channelling for pumping Birket Atta. As mentioned elsewhere in this report, the pumping started about a month too late to cause the drying of the swamp before the mosquito breeding season. It did, however, prevent the breeding during a great part of the season.

The drainage of Birket Batikh was continued by the Palestine Jewish Colonization Association. This relieved the nearby colony, Gan Shmuel, of the greatest part of its summer epidemic.

Drainage was started at the Demaria swamp but had to be discontinued before completion.

The Jewish National Fund laid additional drainage tiles in the Harbage swamp and made a closed cement pipe line for drainage of the waters from this swamp to the Kishon.

Additional tile drainage was made at the swamp near the village Abu Zrek in the Abushushi area.

The Palestine Jewish Colonization Association continued the deepening of the Nahr Zarqa with the ultimate aim of draining into it of Birket Timsah.

APPENDIX II.

List of Statistical Tables.

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